PACIFIC PULP and PAPER INDUSTRY

Volume 3
Number 12

NOVEMBER, 1929

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Photo by Asahel Curtis, Seattle

VIRGIN TIMBER IN WESTERN WASHINGTON

ANOTHER ONE OF THE 47 MANUFACTURERS OF MACHINERY
FOR THE PAPER INDUSTRY THAT USES SKF BEARINGS

The Appleton Machine Company

Equipped with the highest priced bearing in the world

YOU MAY BUY A BEARING AS A BARGAIN BUT TRY AND GET A BARGAIN OUT OF USING IT

for

Nothing is apt to cost so much as a bearing that cost so little

SKF Puts the Right Bearing in the Right Place

Utmost Efficiency, Not First Cost Governed Appleton's Choice of SKF

"FOR utmost efficiency the Appleton Jordan is equipped with SKF, 'the highest priced bearing in the world.'" So says the Appleton Machine Company in a recent advertisement. It is a sound tribute to engineering and design which places performance in the paper mill above any immediate monetary advantage which might be gained by using cheaper bearings.

Three basic features justify the added cost of SKF—the finest raw material, precision of manufacture and freedom from wear and adjustments. These are reflected in a uniform stock of the highest refinement... not only when the Jordan is new but after years of service. And this is so because SKF *Bearings locate the plug accurately* and maintain a uniform clearance all around the circumference between plug and shell knives... *for the life of the machine!*

2327

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SKF

Ball and Roller Bearings

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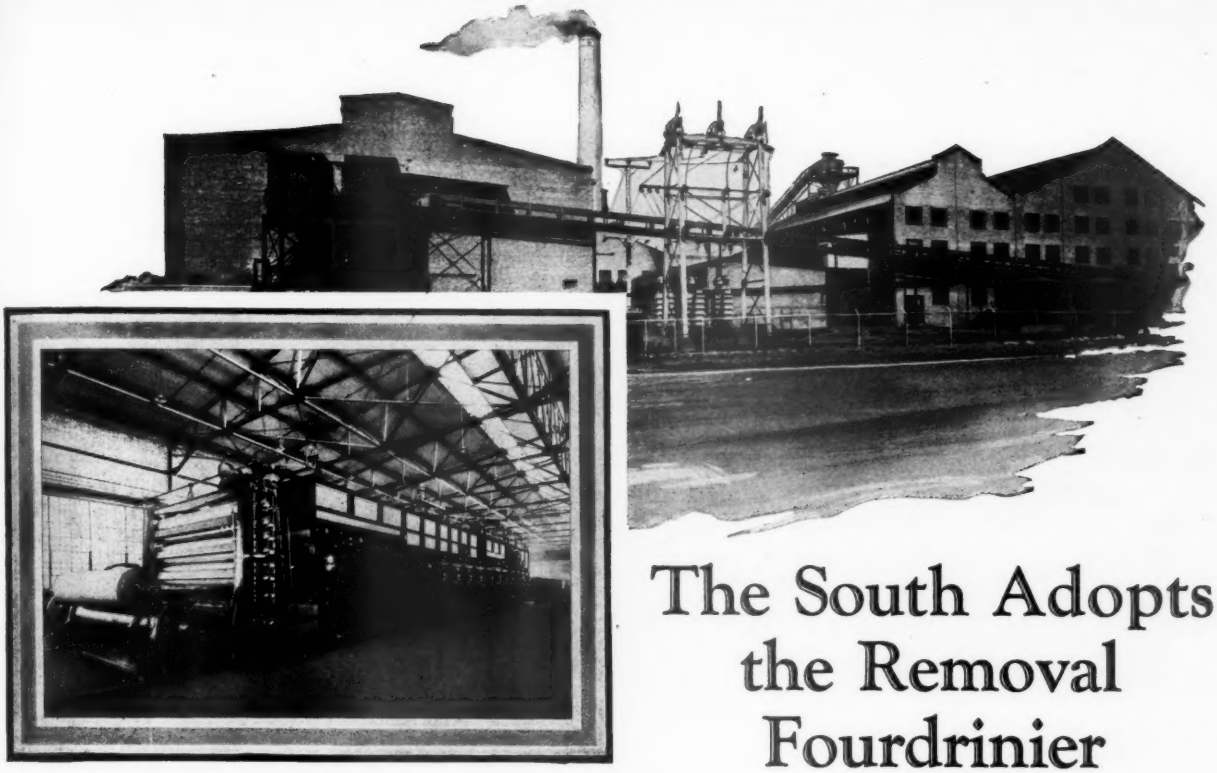


The South Adopts the Removal Fourdrinier

THERE are twelve modern paper machines in Southern paper mills that have established enviable low-cost operation and production records. Each of these machines is equipped with the Beloit Removable Fourdrinier and Aldrich High-Speed Shake. These installations include well known Southern mills and the famous new mills of the International Paper Co., as follows:

3—160″ machines at Bastrop, La.
2—210″ machines at Camden, Ark.
1—172″ and 2—210″ machines at Mobile, Ala.
1—234″ machine at Tuscaloosa, Ala.
1—138″ machine at Braithwaite, La.
1—108″ machine at Elizabeth, La.

The fourdrinier part of each of these machines incorporates the following three Beloit features essential to modern requirements:

1. Aldrich High-Speed Shake, adjustable (while running) to length and frequency of stroke, an essential for producing better paper at higher speeds.
2. Adjustable to pitch of wire, by power, while running.
3. Removable by power, as a unit, for changing wires easily and quickly, with minimum of human effort, loss of time and production, avoiding danger of damage to expensive wire and running parts, without disturbing the alignment so vital to smooth performance.

Modern methods demand modern equipment

BELOIT IRON WORKS, BELOIT, WIS., U. S. A.

The BELOIT

BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS.

Who doesn't remember Annie Oakley, 'Little Miss Sure Shot' of the Nineties--entertainer of Presidents and Kings, or the time she shot the ash from Emperor William's cigar as a test of her deadly skill and accuracy?

Where Precision holds the Stage

Just as Annie Oakley attained perfection as a markswoman only after years of practice aided by a liberal pinch of genius, so has Black-Clawson achieved a similar measure of perfection due to years of experience, the will to build the best, aided by a surprising amount of special precision equipment.

All of which reminds us that only the best is worthy of the effort, be it breaking glass balls from horseback or building machinery with which to make paper.

The Black-Clawson Co., Hamilton, Ohio

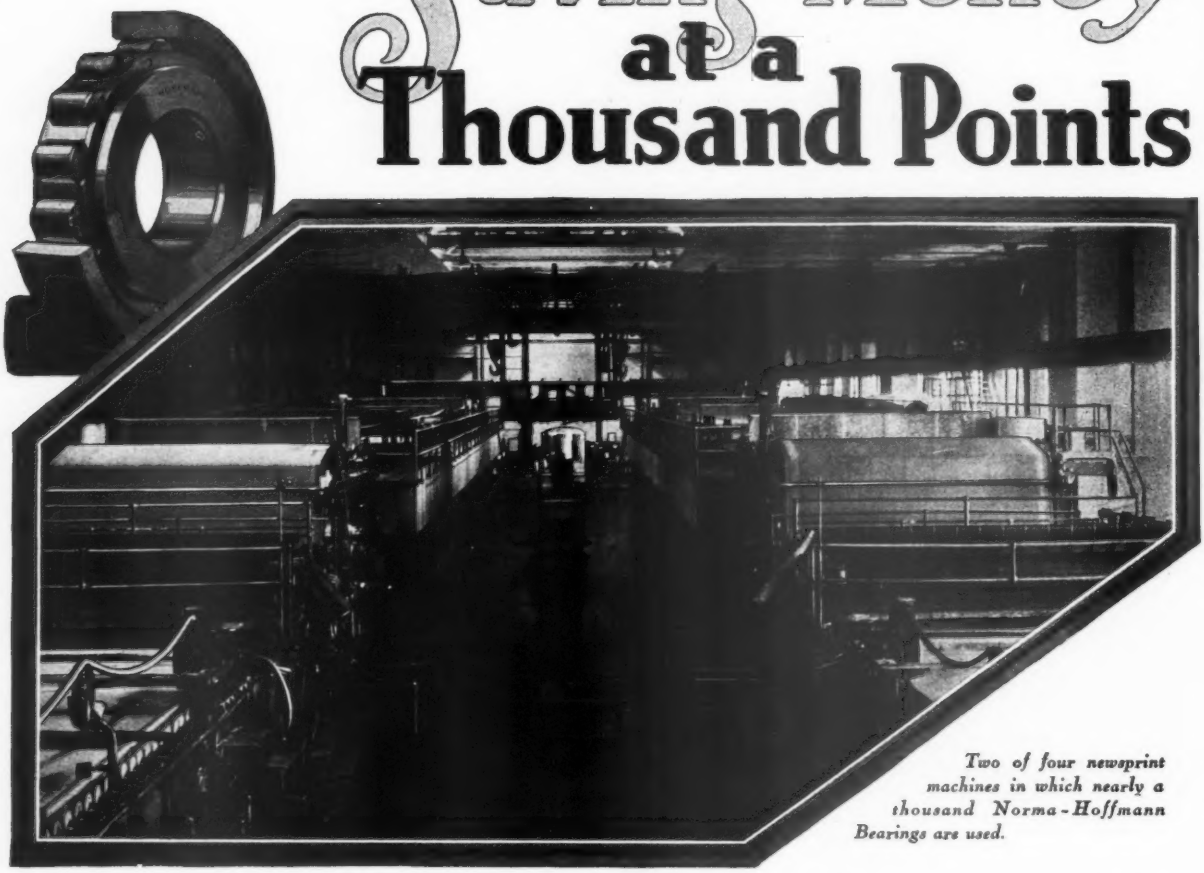
Operating Shartle Bros. Machine Co., Middletown, Ohio

Export Office—15 Park Row, New York City

BLACK-CLAWSON

Built with Machine-Tool Accuracy

Saving Money at a Thousand Points

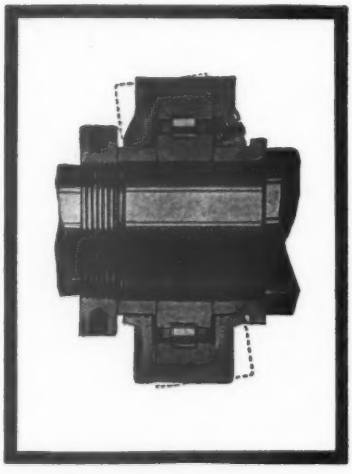


Two of four newsprint machines in which nearly a thousand Norma-Hoffmann Bearings are used.

ON the four modern high-speed newsprint machines in the mill pictured above, almost a thousand NORMA-HOFFMANN Precision Roller Bearings are used on wire rolls, press felt rolls, and dryer felt rolls.

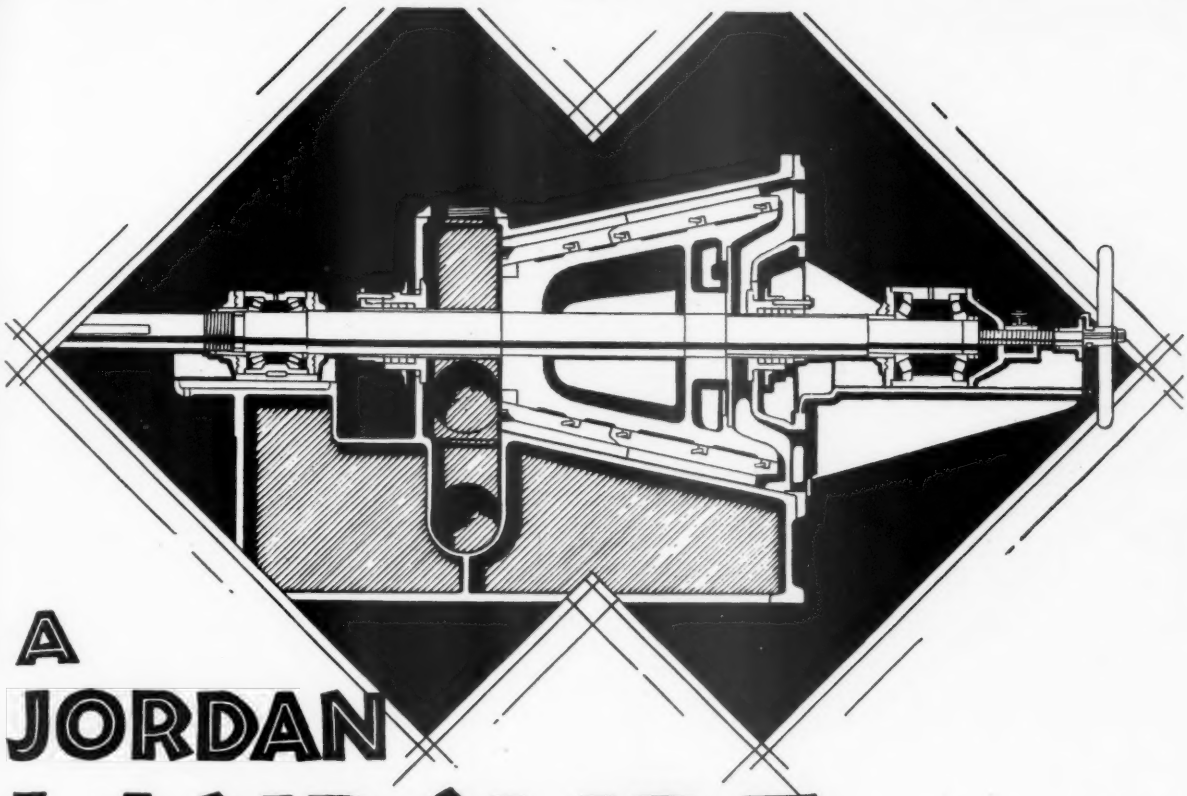
Substantial savings are reported as follows:—wires and felts have longer life; stoppages to change wires and felts are less frequent; nonproductive hours are reduced; power is saved; lubrication is simplified; lubricant is excluded from wires and felts.

NORMA-HOFFMANN Precision Bearings are being used at critical points in a wide range of paper mill machinery. Let our engineers give you the benefit of their experience along these special lines.



"NORMA-HOFFMANN" PRECISION BEARINGS

NORMA-HOFFMANN BEARINGS CORPORATION STAMFORD, CONN., U.S.A.



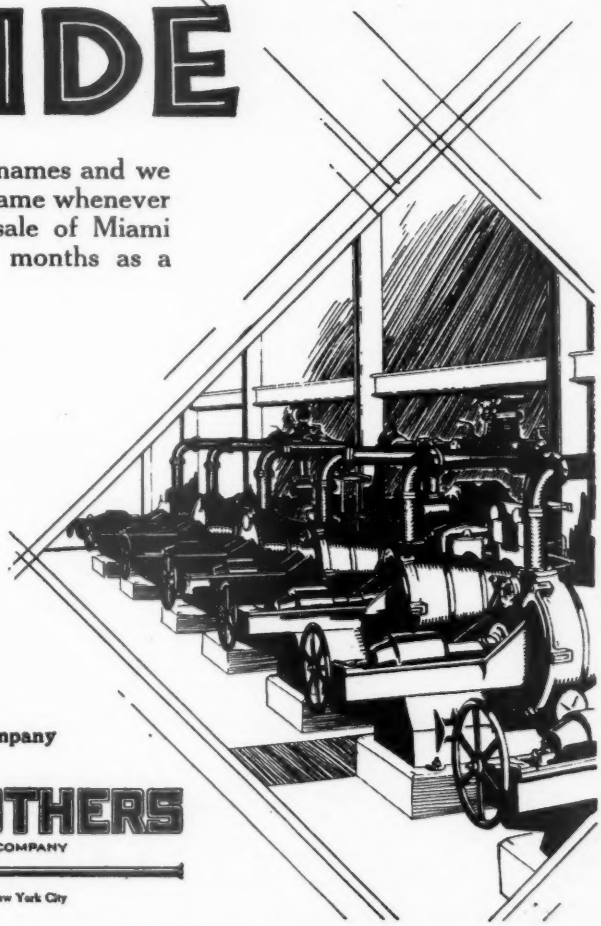
A JORDAN LANDSLIDE

We're given to calling things by their first names and we admit the right of any other man to do the same whenever he can. So today we're referring to the sale of Miami Jordans to Southern Mills during recent months as a **Jordan Landslide.**

—because all of the last five mills that have been built in the South, among the finest in the world, have ordered Miamis.

—and since in the South the paper is made in the Jordans and Miamis are receiving such sweeping preference (100%), it is obvious that these mills have found in the Miami the best Jordan for their most exacting requirements.

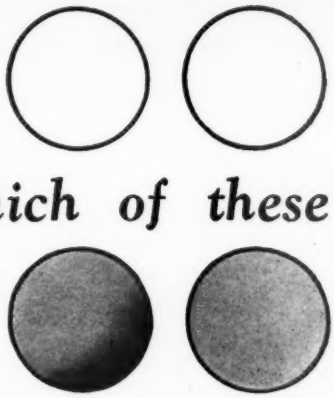
Of course, you'll want to investigate this, so to help you do so we stand ready to name these mills upon request. Let's have the inquiry.



Shartle Brothers Machine Company
MIDDLETOWN, OHIO

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY

Export Offices: 15 Park Row, New York City



Which of these Circles is Out of Balance?

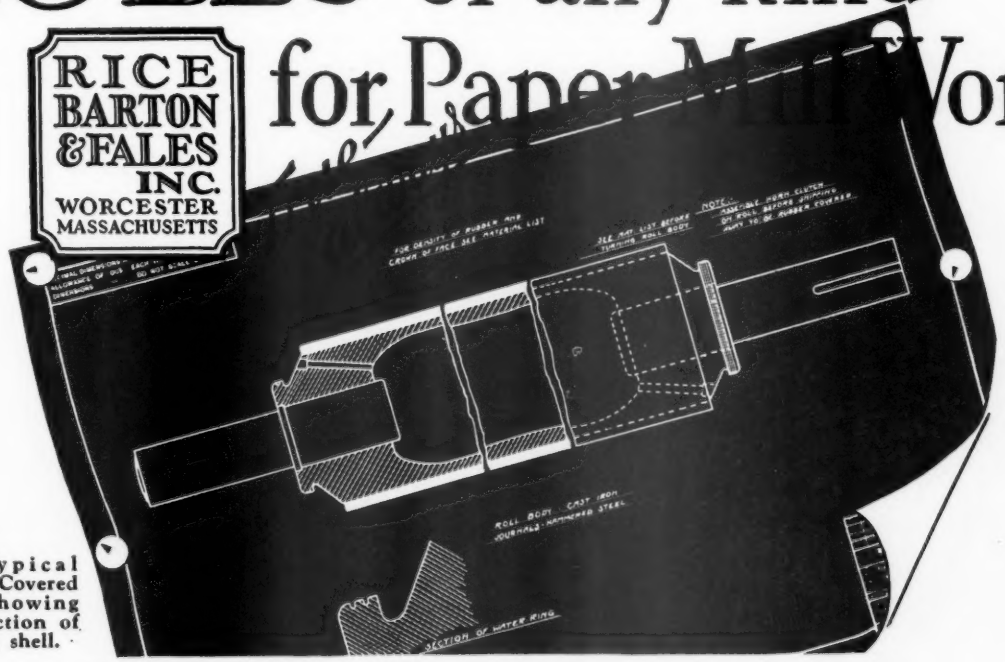
There is more to a Roll than appears on the Surface

RICE-BARTON ROLLS are manufactured from the inside-*out*. Bodies first are designed correctly by experienced engineers. Castings are carefully machined and finished on their own journals. Every precaution is taken to insure accuracy and *correct balance*. That is why our rolls run true always. They *are* true, *all ways*.

We make Table Rolls, Wire Rolls, Granite Press Rolls, Rubber Covered Press Rolls—in fact, Rolls of any kind for Paper Mill Work.

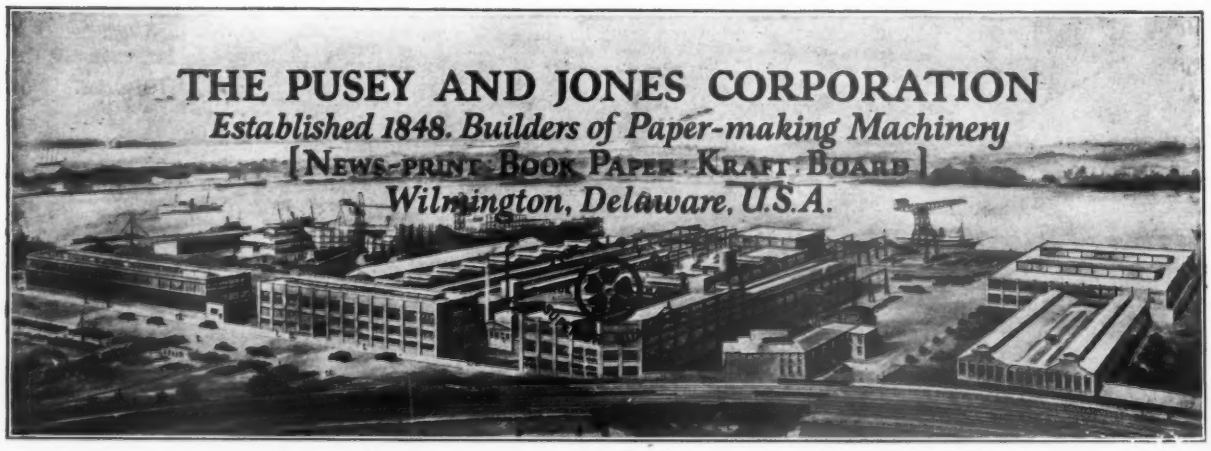
ROLLS of any kind for Paper Mill Work

RICE BARTON & FALES INC. WORCESTER MASSACHUSETTS



Typical Rubber Covered Roll, showing construction of cast iron shell.

Ten minutes after stock is turned on the wire a Pusey and Jones paper-making machine will be producing salable paper—and you'll start getting dividends on your investment. More, you'll get *better* dividends per dollar, *faster* dividends per dollar. The reason is in the added inches of width, the added long feet per hour.



For over 10,000 hours

TEXROPE *drives have operated without expense!*

TEXROPE Drive offers continuous, low cost operation to a degree never before provided by any method of power transmission.

Some amazing performance records have been achieved with TEXROPE.

Six TEXROPE Drives in one paper mill, transmitting the power from 250 H. P. Motors to pulp beaters, have operated for over 10,000 hours with no cost for repair or maintenance. Another paper mill reports that TEXROPE saved 11 H. P. on a paper machine.

TEXROPE reduces shutdown possibilities to a minimum. Each V-shaped belt is a drive in itself. Should one or two belts fail, the others will carry the load until it is convenient to make replacement. In addition, dampness has no effect on TEXROPE, even when the belts and sheaves are continually covered with water. The wear on TEXROPE is almost negligible. No lubrication is required.

An Allis-Chalmers engineer will gladly give you full information and details on how the TEXROPE Drive can be adapted to your requirements. Ask us to send you full details.

Leaflet Number 2114 on Request

ALLIS-CHALMERS MANUFACTURING COMPANY — Texrope Division — *Milwaukee, Wisconsin*

ALLIS-CHALMERS

TEXROPE DRIVES

THE PERFECT TRANSMISSION FOR EVERY PURPOSE ··

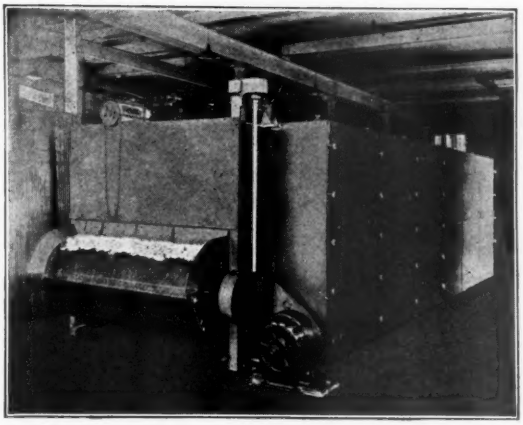
When writing to ALLIS-CHALMERS MFG. CO. *please mention* PACIFIC PULP & PAPER INDUSTRY

FIDALGO DRYING SYSTEMS

(PATENTS GRANTED AND PENDING ALL COUNTRIES)

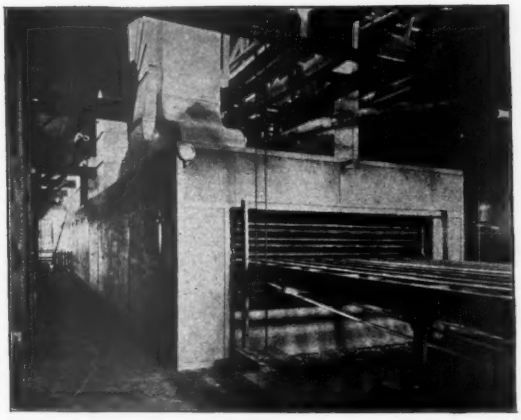
Investigate Our Installations

For PULP DRYING



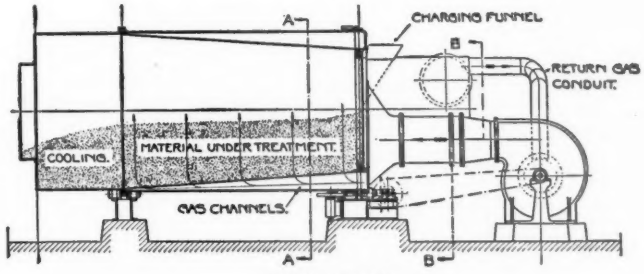
Shredded Pulp Dried With Same Strength as Wet

For INSULATING BOARD

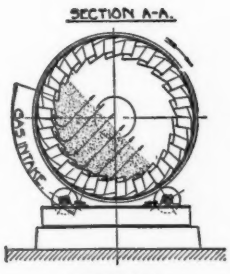


Type M Dryer—For Uniform Surface Board—High Speed Maximum Efficiency

. . . for Bark and Chips



ELEVATION



SECTION

The New "PHERSON" Rotary Dryer

Higher Efficiency—Smaller Units—Lower Costs

TECHNICAL ECONOMIST CORPORATION

CHANIN BUILDING NEW YORK

Simple *and* Speedy

REED
Plunger Type Stock Valve

PATENTS PENDING

A single action valve that is accepted as standard equipment in several of the largest Pacific Coast mills, where numerous installations are demonstrating their superiority day in and day out under the most exacting conditions.

These and Other Features Recommend the REED Valve

Quick opening and closing.
Will not stick.
Self cleaning.

Can be drained or washed out when in use.

Operating lever can be locked in any desired position.

Constructed with full-size pipe opening.

Manufactured in sizes from 4-in. to 20-in.

Further information on request.

Sole Manufacturers

Smith and Valley Iron Works Co.

Builders of Pulp and Paper Mill Machinery

PORTLAND, OREGON

Eastern Manufacturing and Sales Division:
VALLEY IRON WORKS CO., APPLETON, WIS.

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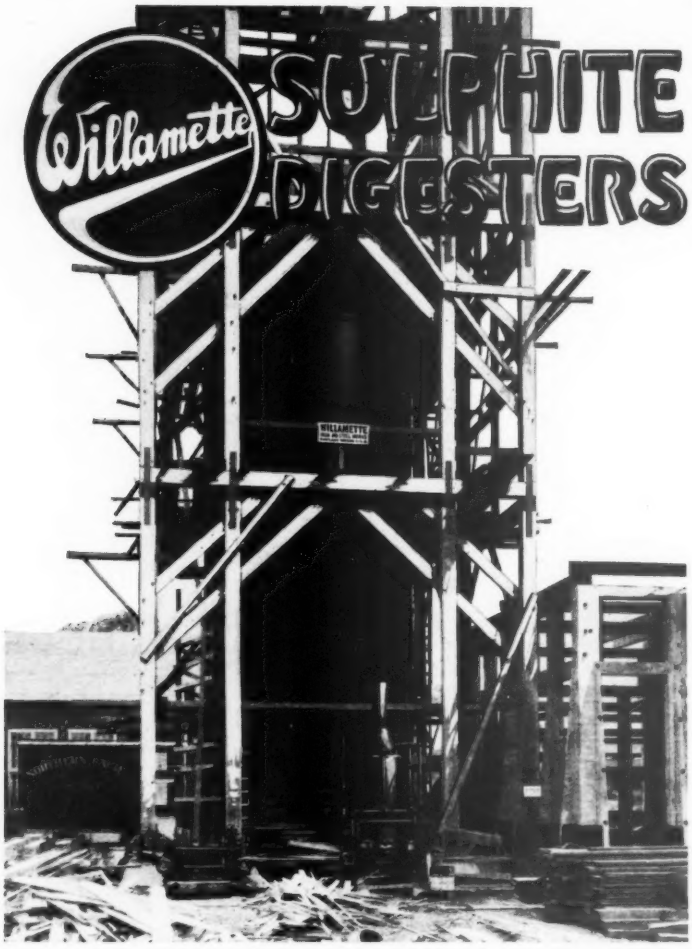
Crown-Willamette Paper Company Installing Additional Willamette Digester at Camas, Washington



Prominent users of Willamette Digesters include:

Crown-Willamette Paper Co., West Linn, Oregon; Lebanon, Oregon; Camas, Wash.; Floriston, Calif.
Columbia River Paper Mills, Vancouver, Wash.
Powell River Co., Powell River, B. C.
Hawley Pulp & Paper Co., Oregon City, Oregon.
Pacific Mills, Ltd., Ocean Falls, B. C.
British Columbia Pulp & Paper Co., Ltd., Vancouver, B. C. (Port Alice and Swanson Bay Plants).
Oregon Pulp & Paper Co., Salem, Oregon.
Spaulding Pulp & Paper Co., Newberg, Oregon.
Inland Empire Paper Co., Millwood, Wash.
Shaffer Box Co., Tacoma, Wash.
Sitka Spruce Pulp & Paper Co., Empire, Oregon.
Rainier Pulp & Paper Company, Shelton, Washington.

Among those features that recommend Willamette Digesters are—

Truly cylindrical insuring long life from linings.

Minimum number of plates in cone and dome. Field erected by experts.

Perfectly fabricated, accurately and completely shop fitted and assembled.

Delivered on time.

WILLAMETTE IRON & STEEL WORKS

PORTLAND, OREGON, U. S. A.

NOVEMBER, 1929

VOLUME III

PACIFIC PULP and PAPER INDUSTRY

NUMBER 12

MILLER FREEMAN, President
L. K. SMITH, Manager

LLOYD E. THORPE, Editor
HARLAN SCOTT, Advertising Manager

In This Issue—

* *

NEXT MONTH

Next month the St. Helens Pulp & Paper Co., first mill to be built on the Pacific Coast for exclusive production of kraft pulp and paper, will mark the third anniversary of beginning production. A timely descriptive feature story will be presented.

EDITORIAL

¶ The Pacific Coast continues to get "bigger and better" in a pulp and paper way. The month's news brings out several new projects which will eventually mean the investment of more millions of dollars. There can be little question that the investors—who in most cases are merely adding to existing heavy investments—are viewing the future with genuine optimism.

¶ Perhaps the biggest single problem before the wood-using industries of the Pacific Northwest is the satisfactory utilization of the great quantities of woods waste. It is logical to assume that the problem, with so much concentration upon it, will be solved, and perhaps soon. Western Loggers are seriously looking into the matter. At their Pacific Logging Congress last month they made pulp wood a special subject.

¶ At least two things have an important bearing on the solving of the logging waste problem. These are, a change in logging methods to conserve and get out these pulpwood values, and second, a wider market for the wood. Progressive thought is working on the first point. New pulp mills are broadening the market.

¶ The old school boy hoax of announcing a new project to scare out a competitor is still employed by organizations and individuals using yesterday's business ethics, but the trick is wearing out. Sound enterprises refuse to cringe before an empty "Booh!"

THE PACIFIC COAST JOURNAL FOR PRODUCERS, CONVERTERS, AND DISTRIBUTORS OF PULP, PAPER, AND BOARD.

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on the 15th of each month—semi-monthly in March

SEATTLE 71 Columbia Street
PORTLAND Sherlock Building
SAN FRANCISCO 369 Pine Street
LOS ANGELES Douglas Building

Powell River is today an institution which includes a complete newsprint mill of 500 tons daily capacity, a 50,000 h.p. hydro-electric development, a modern city of 5,000 population and subsidiary logging and transportation enterprises.

POWELL RIVER

launches improvement program to cost

$6,000,000

POWELL RIVER COMPANY will proceed at once with development of the Lois River power project, enabling it greatly to augment, at a cost of approximately $6,000,000, its present 500-ton news print mill at Powell River, B. C., the Pacific Coast's largest single mill today.

With full development of the Lois River project and adjacent waterpowers under control of the company, the Powell River Co. may ultimately have a daily capacity of approximately 1,000 tons. Work now being rushed forward represents the initial step toward that objective.

In announcing the company's program, Powell River executives declared the paper situation east and west to be definitely improving, intimating there is today a far more confident feeling in the industry than a year ago and the general impression among those closest to the trade was that there would be a steadily increasing demand for news print and at better prices. Several years might elapse before normal conditions were attained, but in the meantime Powell River Co. had considered it worth while to step out and prepare for that moment.

"The purpose of our whole plan," explained A. E. McMaster, general manager, "is to take care of the growing demands of the publishers who place their business with us. We must protect their paper requirements and maintain our position in the export markets."

Decision of the Powell River Co. to proceed with expansion plans was dependent on the provincial water control board's attitude on the Lois river power question. The board had two applications to consider—one from the Powell River Co. and one from Consolidated Mining & Smelting Co.

S. D. BROOKS

Executive Vice-President Powell River Co.

The mining interests at first threatened a strong fight for the power on the ground that they proposed to build a smelter near Lois river, but they withdrew at the eleventh hour in favor of Powell River.

With this initial obstacle overcome, Powell River Co. was authorized to go ahead with a survey and prepare its plans for development. As a matter of fact, engineers have been in the field for some six months so that the company has already acquainted itself with the possibilities of Lois river.

While the undertaking with the government provides for preparation of detailed plans within a year, Powell River Co. will go ahead immediately. It is proposed to

A. E. McMASTER
General Manager
Powell River Co.

have these plans presented to the government within a few weeks, following which construction of the various new units will be started at once.

The company proposes to utilize half the available power at Lois river in connection with the first new unit. The major features of the undertaking are construction of a dam across Lois river, a tunnel and pipe lines from the dam to a point near Stillwater, construction there of a power house, and the erection of a 15-mile transmission line between Stillwater and Powell River, where one new news print machine will be installed.

In discussing the company's expansion plan with PACIFIC PULP AND PAPER INDUSTRY Mr. McMaster made it plain that present appropriations called only for a one machine development, that nothing is definitely planned beyond that one machine, and that positively no further development would be undertaken until market conditions justify. It was also made clear that the company had no intention of branching into other lines of paper other than newsprint.

It is possible that the company will build only a temporary dam at Lois river in connection with its present project. A permanent dam of higher elevation would be built when the company decided to go ahead with plans for the complete development of the stream. It is proposed to develop approximately 17,000 to 18,000 h.p. now. More than double that amount of power can be developed by making fuller use of Lois river and tieing in with Haslan lake, which is a feature of the company's future program to materialize in accordance with market requirements.

The tunnel and pipe lines will traverse a distance of more than a mile between the dam and the Stillwater power house. The tunnel will be approximately 5,800 feet long and the pipes will be of concrete, twelve and a half feet in diameter. While the dam will be built to take care of present requirements only, the power house will accommodate one generator for the present but will be large enough to take care of a second one when warranted.

This increase in power will enable the company to install a paper machine of some 35,000 to 40,000 tons annual capacity. The type of machine has not yet been chosen, it was said, but it is estimated that it will give the company's mills an aggregate daily capacity of 650 tons a day. The company already has six paper machines in operation, the last two having been installed about two years ago, practically doubling the previous capacity of the mill. These two large machines are designed to operate at paper speeds up to 1,000 feet per minute, the four smaller ones at paper speeds up to 675 feet per minute. The large machines have a width of 234 inches, two are 186 inches, one is 156 inches and one 148 inches.

At present the company obtains all its power from Powell river and this is now being developed to the maximum. The company's hydro-electric development totals 50,000 h.p. The new unit will make a total of about 68,000 h.p. and when Lois river is fully harnessed approximately 90,000 h.p. may be obtained.

Lois river is a fine stream with a good fall, draining the Gordon Pasha lake country. There is still a third watershed available at Haslan lake, lying east of Powell lake, and it is probable that eventually a tunnel will be built to drain this piece of water into other lakes, thus linking the series of three lakes together in a compact waterpower system unique in the West. Haslan lake is of little consequence as a single waterpower unit but combined with the power from other sources it would be a valuable adjunct.

The company will take advantage of the lower water period next summer to begin construction of its dam and this will be rushed to completion before the end of the year. While the company's experts will devote the same careful skill to the job as they have in the past to all other Powell River undertakings, establishment of the new unit will be rushed as fast as possible.

ROBERT BELL-IRVING
Mill Manager
Powell River Co.

First contract on the program has already been let to Stuart Cameron & Co., of Vancouver, to clear a 150-foot wide right of way and erect a transmission line from the Stillwater power house site to Powell River. Other contracts will be called for at an early date.

The company's log policy will be unchanged by the new development, although it is possible that the increased consumption of pulp wood will necessitate greater use of its vast spruce holdings on Graham island, one of the Queen Charlotte group. The company now consumes about 10 million feet of pulpwood

(Turn to page 40)

MORE WATER

Portends Bright Future for Development at PORT ANGELES

PORT ANGELES, fast developing pulp and lumber metropolis on the northern shore of Washington's Olympic Peninsula, again stepped into the industrial spotlight last month by moving to enlarge its industrial water supply from 20,000,000 to 45,000,000 gallons daily.

Last July Port Angeles citizens contributed to the cause of industrial progress a 99 44/100% vote for a $500,000 bond issue, the purpose of which was to provide funds to build an industrial water line with a capacity of 20,000,000 gallons daily to supply the proposed pulp and sawmill of the Olympic Forest Products Co., ultimately to have a capacity of 500 to 600 tons daily.

The original proposal was to construct a pipe line from the Elwha River west of the city along the contour of the beach, thru the city to the site of the proposed mill just east of Port Angeles. This line would pass right by the doors of Port Angeles' two present mills, the 270-ton news print mill of the Washington Pulp & Paper Corp. and the 60-ton pulp and board mill of the Fibreboard Products Inc. both of which companies are in the Crown Zellerbach family.

The Washington Pulp mill has not had an oversupply of water and has been drawing quite heavily on the Port Angeles domestic system. New agreements reached between W. L. Raymond and Norman Gibbs, as spokesmen for the three mills named, and the city commissioners were made public following a meeting on October 30.

New Election

The revised plan contemplates a new bond election December 3 at which time the voters will be asked to endorse an $800,000 bond issue to automatically cancel the $500,000 issue voted in July. The hearty endorsement given the previous election is expected to be repeated. With the additional $300,000 the city will build a line with a capacity of 45,000,000 gallons, or 25,000,000 gallons more than originally planned.

Physical characteristics of the new line are substantially changed. Instead of carrying the small pipe line all the way from the source to the Olympic Forest Products site, a short cut tunnel with a capacity of 100,000,000 gallons is now proposed from near the source thru a high point just west of the Washington Pulp plant. From the mouth of the tunnel as far as the Washington Pulp and Fibreboard plants a large pipe line will be carried, the size to be diminished from there on to the Olympic Forest Products site at Ennis Creek.

Under the new agreements the Washington Pulp mill will take 15,000,000 gallons daily of the water to be brought in by the proposed larger water system. The Washington Pulp signed to pay $16,000 for the first year and $20,000 each year thereafter for a period of not less than 25 years nor more than 30.

This rental will pay for the additional $300,000 bonds on which the city will ballot December 3.

The Washington Pulp and Fibreboard plants are to quit using water from the city's domestic supply, under agreement, taking their water from the new 15,000,000 gallons. But with this 15,000,000 they will have a surplus of about 8,000,000 gallons.

Under this arrangement the Washington Pulp plant will have a large surplus of water for which they will be paying. The natural deduction is that immediate enlargement of the plant is contemplated but company officials are careful to point out in this respect that while acquisition of additional water supply is indicative of eventual enlargement, such water acquisition is NOT a definite committment that such expansion is to be undertaken at an early date. Such enlargement is largely when, as and if markets may indicate.

The second agreement made by the commission was with the Olympic Forest Products Co., which is now constructing the first 150-ton unit of a bleached sulphite mill at Ennis Creek. This corporation had arranged to take the 20,000,000 gallons of water to be brought in by the original Elwha diversion system. Now, it agrees to purchase also the additional water to be obtained in the enlarged project that the Washington Pulp and Fibreboard will not use. Thereby, the company has proposed to buy at least 30,000,000 gallons daily.

Under Construction

Bids for construction of the original $500,000 system had already been opened. Olympic Forest Products Co. was the sole bidder on the contract and was also to underwrite the bonds. The enlarged project made necessary a cancellation of this bid. New proposals have been asked for to construct the diversion dam, intake and approximately 1.5 miles of tunnel. This amount of work can be paid for by the $500,000 bond issue already approved and will stand good whether or not the substitute bond issue goes over.

Speed is the watchword in Port Angeles and it looks like service will be rendered. The water line will be rushed through to be ready to serve the new Olymic Forest Products mill which expects to get into operation in the early summer of 1930.

In the meantime O. C. Schoenwerk, who has charge of the design and construction of the new mill, is pushing the work with several aids. A. J. Bennett, field engineer for the Zellerbach interests, is serving somewhat as general right hand man to Mr. Schoenwerk. E. H. Vicary, power engineer who had much to do with the power plants in several of the Zellerbach and affiliated mills is designing the power plant. D. B. Davies, in charge of the Rainier Pulp & Paper Co. at Shelton, Wash., is spending about one third of his time working out the operating features of the new Port Angeles mill.

In the meantime Chris Kuppler's Sons, building contractors with an impressive number of pulp and paper mills already on their list, began pouring concrete on November 1. Pile driving, dredging and dock building are going on apace also.

How will the growing

Pulp Industry

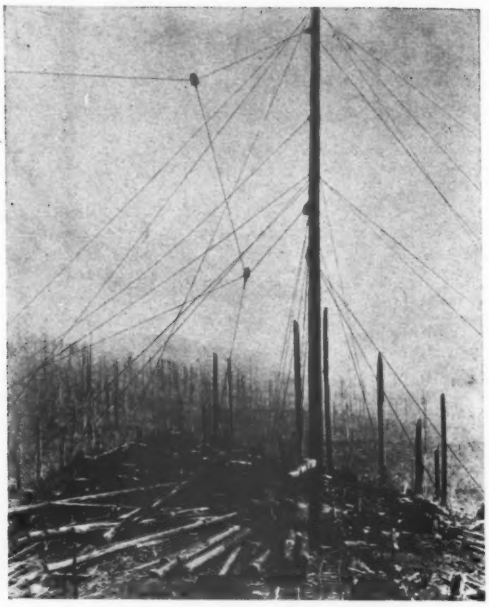
Change

Logging Methods

on the Pacific Coast

A Discussion

By OSSIAN ANDERSON, President
Puget Sound Pulp & Timber Co.



A spar tree used in Douglas fir logging

THE problem of getting a sufficient return from hemlock logs to meet stumpage, operating and transportation costs is a subject that undoubtedly no one can answer better than the practical logger and timber owner. However, recent developments on the Pacific Coast in the "chemical pulp" industry may offer some interesting possibilities that can only be obtained by the exchange of ideas between the men engaged in the related branches of the industry, brought about at meetings of this sort.

Twenty years ago hemlock was not a problem for the logger, as a very small relative stand existed in the logging areas then operated. Today it can be safely said that the loggers in the State of Washington are producing approximately 15 per cent of hemlock to their total output, and it can be reasonably expected that in another 10 years 35 per cent of logging output will consist of hemlock, this due to constantly increasing percentage of this specie, as logging operations advance to higher levels in the hills.

It can also be said that to date almost 40 per cent of the hemlock found in the logging operations has been left in the woods to be destroyed by breakage and burning after logging operations have been concluded. This destruction is due to lack of market for hemlock logs in general and no market for logs under 12 inches in diameter, not suitable for saw logs. Further, the prevailing belief that if a market could be found for these smaller trees they cannot be salvaged and marketed without sustaining a loss.

It is with a view of giving you some facts and figures from the pulp mill operators' standpoint that I will address you, with the hope that from it you may best determine for yourselves whether the pulp mill does offer a possible solution to the problem of marketing hemlock stumpage at a profit.

In order to simplify the figures I will confine the statistics to Washington operations without including the state of Oregon or British Columbia, both of which have very similar conditions.

*An address prepared by Ossian Anderson, president of the Puget Sound Pulp & Timber Co., Everett, Wash., and delivered at the 20th annual meeting of the Pacific Logging Congress, Seattle, October 23-26.

Pulp mills use generally the term "cords" as a basis of measurement for their wood supply. In this instance, I will use log measure for the sake of easy comparison and assume that 1 M feet log measure, scaled under Scribner's rule of standard saw logs, will, if carefully barked and split, produce two cords of pulp wood.

In 1924 the State of Washington had no chemical pulp mill at all and the existing paper mills in the state at that time consumed approximately 1,000 M feet of hemlock saw logs for their own relatively small requirement of chemical pulp.

The period from 1924 to 1929 has witnessed a very rapid establishment of chemical pulp plants producing pulp for sale to the paper mills. Eight new pulp mills are now in operation in the state and two more under construction. All but two are strictly pulp producers; the two exceptions are converting a part of their output to paper or paper board.

The Present Market

These plants have a daily capacity of 820 tons of chemical pulp per day and the two plants under construction will add initially another 325 tons per day. These mills theoretically would consume 1,145 M feet log measure of hemlock logs per day, but having first absorbed the available hemlock in saw mill waste their actual daily consumption of logs and forest wood represents only about 400 M feet.

A pulp mill operates 310 days per year. On this basis **there is at present an annual market in the pulp mills of the State of Washington for 125,000 M feet of hemlock, logs, or 250,000 cords of hemlock forest wood, with a possible additional requirement for paper mills having their own chemical pulp units, of approximately 10,000 M feet or 20,000 cords.**

The next ten years will undoubtedly see this consumption doubled provided wood costs can be maintained at the present level. Expansion in the pulp industry is absolutely dependent on continued supply of low cost wood. The pulp mills on the Pacific Coast have a serious disadvantage in high freight costs on

their product to their main consuming markets, this due to long distance haul to the East and Middle Western paper mills who are the principal consumers of their output.

Our competitors have from $2.50 to $6.00 per ton of pulp the advantage in freight rates, which in terms of cost of wood means that they can pay from $6 to $13 per cord for wood more than we pay and still compete on an equal basis.

The cost of mill waste used by the various pulp mills cleaned, sorted, and delivered, equals $10.00 to $12.00 per M, when considering extra cost of preparing mill waste as against logs, and has therefore advanced to a price beyond its relative value as compared to hemlock saw logs as now offered on the market. Especially when we consider that saw mill waste represents the poorest part of the tree because of difficulty in cleaning, and therefore does not produce as good a quality of pulp as when using the whole product of the tree.

Curtail Mill Waste

The tendency is therefore to curtail the use of mill waste as much as possible and convert it to hogged fuel instead of pulp chips, and if it were not for the fact that most of the early pulp mills built their wood converting departments for the use of mill waste on the then prevailing cheaper prices, the same mills would no doubt at once revert to the use of logs or forest wood. Unless mill waste is reduced in price I predict a very rapid change to the use of logs and particularly so for any new pulp mills that may be built.

It is in view of this tendency that I think loggers should seriously consider the salvaging and converting to a profit the immense quantity of small hemlock trees now destroyed or left in the woods. Hardly any real experiments have as yet been made by practical commercial loggers along this line and my remarks are therefore more or less theory only. However, I think that the only people who can make a success of this problem are the loggers themselves, rather than subcontractors, pulp mills, and other companies who will naturally have to duplicate overhead and other costs already a part of the cost of a regular logging operation.

WHAT PRICE LOGGING WASTE?

There is at present in the State of Washington alone an annual market for 250,000 cords of hemlock forest wood, and the next 10 years will without doubt see this consumption doubled, provided wood costs can be maintained at present levels.

The cost of mill waste, considering the cost of cleaning and converting it to chips, has advanced to a price beyond its relative value compared to hemlock saw logs now offered on the market. Unless mill waste costs are reduced a very rapid change to use of logs may be forecast.

With an allowance of 75c per cord the logger stumpage owner derives an added benefit of $12,000 per section of timber land when he logs the land clean, a net profit not now possible when the small trees are left to be destroyed.

If loggers will engage themselves in this problem of profitably taking out the existing pulp wood values, with the same energy and ingeniuity with which they have solved other problems in the woods they will have for themselves a profit and serve to expand the industries of the Pacific Coast.

The minor experiments to date consist of wood cutting after logging of other species, or straight logging of hemlock down to 8-inch top in log lengths by pulp companies. I believe that all these experiments have proven costly.

OSSIAN ANDERSON

The cutting of wood in logged-over areas is of course prohibitive as the ground is so torn up and the limbs and chunks and rubbish left on the ground make both cutting and hauling a very costly operation.

The cutting and yarding of timber in log lengths under merchantable log sizes is also a costly operation as rigging used in the woods for larger logs is not suitable and economical for the handling of small hemlock trees even though gas donkeys are used. The loading of these small logs is costly and if shipment is made over common carrier railroads the minimum loading regulations, of 6 M feet per car, make the freight cost prohibitive as you cannot load over 4 M feet of the small logs on a car under the best of conditions.

Rafting and booming costs for these small trees are also high and cost of conversion to cord wood at the pulp mills plus boom storage and handling is a considerable item.

My idea of the proper next step in solving the use of small hemlock is summarized as follows:

Future Methods

1. Cutting of trees for pulp wood should at present not be attempted unless the hemlock specie represents 35 per cent or more of the total stand. All cutting should be made before felling of any of the merchantable sized timber. Railway sidings for regular logging should be kept one mile in advance of yarding of the larger timber to facilitate loading of pulp wood.

2. The small logs under 12 inches in diameter down to 4-inch top should be cut by hand or by mechanical means into cord wood in the woods wherever the tree is felled, barked on the ground during peeling season, May to September, piled or loaded on small sleds capable of handling one cord to a sled. The sleds to be 12 feet long, made sturdy and yet light so that two men can turn them around by hand. The loading of

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How Crown Willamette Is Improving Its

CAMAS MILL

An official account of an extensive improvement program now being made

IT is intended that the Camas, Washington, mill of the Crown Willamette Paper Co., upon completion of present extensive improvements, shall cease to be a newsprint producer, and that the customary fruit and groundwood-filled tissue, sulphite and kraft wrapping and converted bag tonnage shall be increased. This mill will also enter the field of bleached specialties and personal utility papers, converted and packed in attractive forms ready for distribution to the public. Emphasis is to be placed upon cleanliness and brightness of these goods in addition to meeting most exacting customer specifications.

The improvements now in active construction at Camas include a new band-saw mill, chipping and chip handling facilities, an additional sulphite digester, a bleachery, three new paper machines, rebuilding of four of the present nine machines, a toweling, toilet, and napkin paper converting plant, additional water filtration equipment, and a new steam electric generating plant.

Wood Mill

The new wood mill is typical of the evolution increasingly rapid in progress of Pacific Coast pulp and paper mills. The present drag and circular swing saw and steam splitter arrangement, while being retained in part, is being augmented by the breakdown type of mill wherein hemlock and spruce logs will be sawed into cants. The direct connected motor driven band saw mill will handle 32-foot logs as large as 8 feet diameter. Longer logs will be bucked in the water by floating equipment. Large logs will be hoisted vertically from the water, and will be run through the breakdown side. Small ones will be transported up the present inclined log haul to the drag saw and splitter side of the enlarged wood mill.

Chips

Clean wood is flumed from the wood mill through existing facilities to the new chipping plant and to the grinding room. Wood intended for chipping is discharged from the flume to a horizontal conveyor flight from which it is diverted selectively with respect to the grade of chips desired to the spouts of the six chippers, arranged in three pairs. Each pair of chippers discharges to a horizontal belt from which bucket elevators raise the chips to the vibrating screens which are arranged in tandem, a pair to each pair of chippers.

From the vibratory screens the slivers and oversize chips return to a breaker which returns them for rescreening to the kraft chip screens. The sawdust and smaller chips pass to a second set of vibratory screens which separate sawdust from the small chips. The smallest chips will be used for kraft pulp and the sawdust will pass for fuel to the new boiler room.

A large bin is being added in which to store sulphite chips for the new digesters. This bin will be fed by a belt conveyor which travels on to present sulphite chip storage bins. A new belt conveyor delivers kraft chips to the present two circular steel storage tanks. This conveyor is fully housed and will handle chips with minimum of crushing and so as to be thoroughly protected from extraneous dirt.

Sulphite Mill

The unbleached pulp department of the Sulphite Mill is being augmented by a new 19-ft. diameter, 58-ft. high digester of sufficient volume to cook 26 tons. This is one of two units which a new building is being constructed to house. The blowpit for the new digester is of reinforced concrete lined with tile. The drainer bottom is of perforated wood. The vomit stack above the blowpit roof level is of wood.

Additional acid recovery tanks, acid cooling facilities, and another sulphur burner are being provided. This equipment is being installed to assure a high test acid, with minimum loss of chemicals.

The new digester and two of the present digesters will be piped up so that a special easy bleaching stock can be produced separately from the sulphite stock that is to be used unbleached.

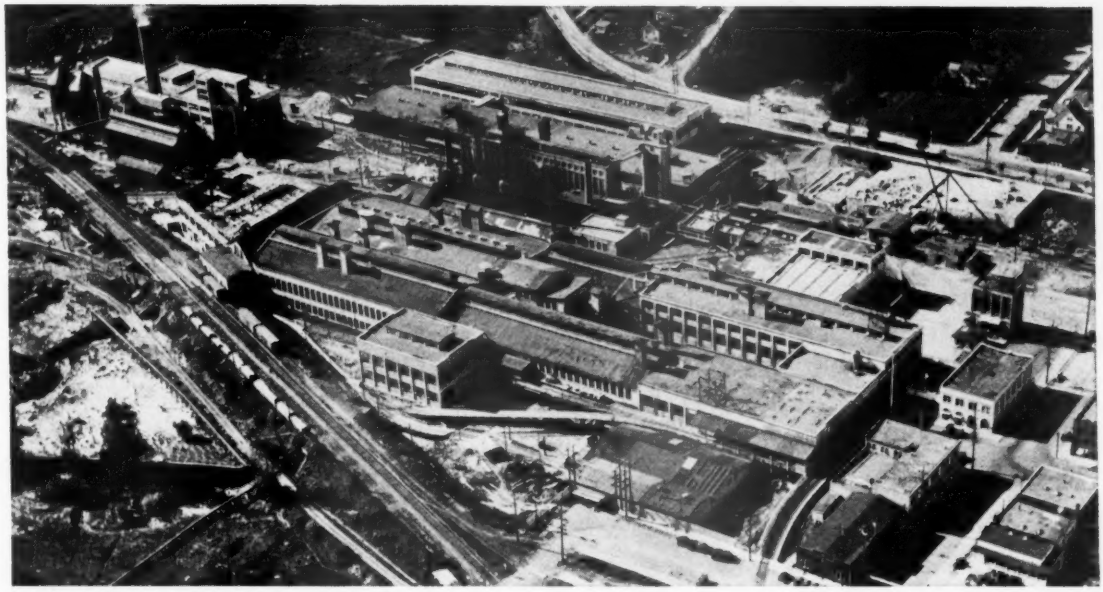
As of first necessity to an effective bleaching operation extensive screening and gravity riffling facilities are being provided for the raw stock to be bleached. These with the bleaching and washing equipment are housed in a new three-story Bleachery building of reinforced concrete construction. Immediate provision of the necessary liquid chlorine apparatus for the preparation of bleach liquor, high density bleaching tubs, blowers, thick stock conveyors and filter-washers is being made for single-stage bleaching of 100 to 150 tons of pulp daily. Provision is made for the future operation of additional equipment to accomplish double stage bleaching if desired.

Extensive provision of slush pulp storage tanks is being made to avoid the expensive necessity of lapping pulp on wet machines during periods when the supply exceeds the demand, which subject as to groundwood pulp impinges upon that of heat and power balance mentioned below.

Paper Machines Nos. 1, 2, 3 and 4

The wet ends of two Harper fourdrinier machines (No. 1, the wire of which is 134 inches in width, and No. 2, 114 inches) are being rebuilt to provide for running fine 10-pound tissue papers at higher speeds. These improvements include lengthening the wires to 65 feet each, new copper lined head boxes, high speed adjustable shakes, spring support of breast rolls, etc.

Dry end and drive improvements of Nos. 1 and 2



Brubaker Aerial Surveys, Portland

The Camas Mill of the Crown Willamette Paper Co. where an extensive improvement program is now in progress.

include new and wider dryer gears with cut teeth, new enclosed steel spiral bevel section drive gears running in oil and mounted in roller bearings. Sections will be engaged by magnetic clutches, push button operated from the fronts of the machines. The present line shafts, bearings and alternating current motor drives will be retained but new taper pulleys installed.

New slitter shafts in roller bearings and six double edge slitter hubs complete the rebuilding of these machines.

A 124-inch wrapping paper fourdrinier machine (No. 4) engine driven, is continued in operation unchanged. An existing 85-inch newsprint machine (No. 3) is being displaced by a new 137-inch straight fourdrinier high-speed machine for fruit wrap and tissue production.

The new No. 3 machine is typical of the best conservative design for the desired product. The wire is 65 feet long and the fourdrinier part from the breast roll inclusive of table rolls, suction boxes, guide rolls, wire rolls and savealls but not the couch rolls are removable by motor drive as a unit on rails into the tending aisle, to facilitate changing of wires. The fourdrinier is adjustable vertically also by motor drive at the guide roll through a distance from 2 inches below to 6 inches above level.

The slice is of special design for light weight papers, including a motor-driven perforated submerged roll. Separate from the removable Fourdrinier part and beneath the suction box area of the wire is a fixed sheet metal saveall tray with spout back of the return wire discharging into the wire white water pit.

Eighteen dryers 60x134 inches and one 36-inch dryer overhung toward the press with a rubber covered top roll for returning the top pickup felt, a rope carrier, a four-roll calendar stack, uniform speed reel combination winder and slitter comprise the dry end of the new No. 3 machine. The first and last three bottom and the last top dryer are equipped with long shaft brass bladed doctors and the last top dryer is equipped with an internal cold water shower.

Each section of the machine is driven from the line shaft through hardened cut steel bevel gears running in oil baths, and actuated by magnetic clutches, push-button operated from the front of the machine. The lubricating system includes an oil circulating pump and oil filter. Dryers are driven by shrouded chains from the sprockets on the section shafts.

The line shaft is driven through cast iron taper pulley belted to a direct current motor, current for which is applied by an alternating current motor-driven generator.

Rebuilding Machine No. 5

The present 152-inch fourdrinier machine No. 5, hitherto used for the production of news, medium to light weight sulphite and kraft wrapping papers, is being rebuilt to produce bleached sulphite specialties of greater tonnage. These changes comprise a removable fourdrinier part similar to that of the new No. 3 machine, and of the same materials including, head box, high speed slice with rectifier roll, breast roll, table rolls, wire roll and breast roll doctors, saveall tray motor-driven shake adjustable for speeds of 450 to 700 feet per minute. The present suction boxes are being retained but provided with an oscillating mechanism. Suction couch and first press rolls not previously included in this machine are being provided.

A new uniform speed reel with three spools, all mounted in roller bearings, and a pair of unwinding stands with friction arrangement for winding from the new spools onto the present winder are being provided. No other changes of the dry end of this machnie are being made except to provide new pulleys to drive the new and larger couch first press rolls and reel.

Rebuilding Machine No. 6

The 187-inch fourdrinier machine, No. 6, is being rebuilt for higher speed to produce increased tonnage of kraft wrapping papers and bag stock. A new patented slice is provided with a rectifier roll arranged for adjustment while the machine is running.

The length of wire is increased from 80 to 96 feet. The fourdrinier part is being rebuilt but not into the adjustable and removable type as for Nos. 3, 5 and

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What can we do with the ?-HEMLOCK-?

The Pacific Logging Congress discusses pulp

WHAT the logger in the Douglas fir region of the Pacific Coast wants most to know is "What can we do with the Hemlock?" His plaint is plain. "We are getting into higher and rougher country, the timber is poorer and smaller and the percentage of Western Hemlock is greater. What to do?"

Seeking an answer, several hundred practical loggers sitting in on the twentieth annual convention of the Pacific Logging Cnogress listened attentively to an afternoon devoted principally to discussions on the potentialities of pulp. President R. W. Vinnedge opened the session with a remark that the loggers owed a debt not only to their stockholders but to the Pacific Northwest as a whole to get maximum utilization from the forest resources and that pulp seemed to open a way.

Andy LeDoux told what the St. Paul & Tacoma Lumber Co. of Tacoma had done with relogging. This company, it will be recalled, built a special Hemlock mill adjoining the new pulp mill of the Union Bag & Paper Power Co. to effect a more efficient use of Hemlock. Mr. LeDoux said his company had been doing some salvage work in the woods since 1919 and while they were far from satisfied they believed themselves to be on the right track. His belief, as was emphasized by other speakers, was that profitable salvage depended largely on the Hemlock log market, and at present this market was not attractive.

Crown Experiments

The material salvaged does not all go to the headrig, Mr. LeDoux told Roy Morse, general manager of the Long-Bell Co., Longview, in answer to a question. To the contrary a number of good logs were picked up and these were sorted out for the sawmill while the breaks and No. 3 stuff went to the pulp mill.

Don Denman, who has a lot to do with getting logs for the Crown Willamette Paper Co., said his company "had been fiddling around with relogging for a number of years" but he wasn't too enthusiastic about the proposition. Experiments have been carried out at the company's camp at Cathlamet and different types of equipment, including tractors, had been employed. As for results, the areas relogged had cruised from 12 to 15 M feet after clean logging for saw logs, and after relogging only 2500 feet was estimated to remain. Mr. Denman estimated the cost of delivering to the water dump at about $1 less than logs brought in with a fair lead. He thought relogging would not be profitable without a Hemlock market of $14 to $15.

A significant point brought out by Mr. Denman was that considerable loss was experienced through sinkage of Hemlock logs after being put in the wtaer. To get around this difficulty he said the company was building a cut-up plant at Cathlamet which will be equipped with two cut-up saws, four splitters, drum and disc barkers. With this equipment the company eliminates the sinkers and will send them down to the pulp mills on scows in the form of cordwood.

Mr. Morse of Long-Bell asked at this point how the wood was measured and expressed a belief that the sooner the industry recognized a standard system of measurement the better off it would be. Mr. Denman added that he thought the method of measurement was a big problem. He pointed out that wood was bought in the form of logs, chips, cordwood, and slabs and that all were at variance. He believes that the only fair measurement is the cubic foot system.

President K. O. Fosse of the International Wood & Sulphite Co. offered a brief movie-illustrated paper (which was read in his absence) on his company's chipping operations at Neah Bay, Wash. The chief point in favor of this type of operation, Mr. Fosse pointed out, was that the problem of full utilization of timber had been solved.

Shifting Industry

C. A. Hogue of the West Coast Lumberman's Association went into ecstacies about Hemlock and forecast a better future for it, particularly in the lumber market, when the real merits of this now rather despised wood were fully understood.

"The Logger's Problems" were aired by George D. Newbegin of the Cascade Timber Co. of Tacoma. The substance of his talk was that logging costs were rising with poorer shows being worked. The solution lay with better sales effort.

Mr. Newbegin forecast a good future for the pulp industry and hinted a shift of that industry to the Northwest within five years. Further, with improvements in pulp manufacture the effect would be beneficial for the Hemlock log market.

Modern high ball logging is too rough on the Hemlock, Mr. Newbegin said. Such a system was not suited to the small stands. He said new methods would have to be found for taking out the smaller logs.

Hemlock Riding Free

President Vinnedge made an interesting comment following Mr. Newbegin's paper. He said, "When we started to log 26 years ago we paid no Hemlock stumpage. And we didn't log it. Then we began to get a bit of a price for the stuff and so had to pay a little stumpage. But Hemlock has never stood on its own feet. It has had to ride out with the Fir logs. Today we are getting cheaper Hemlock prices and more Hemlock logs." He added that he did not believe that the increased development of the pulp industry would keep pace with the increased production of Hemlock.

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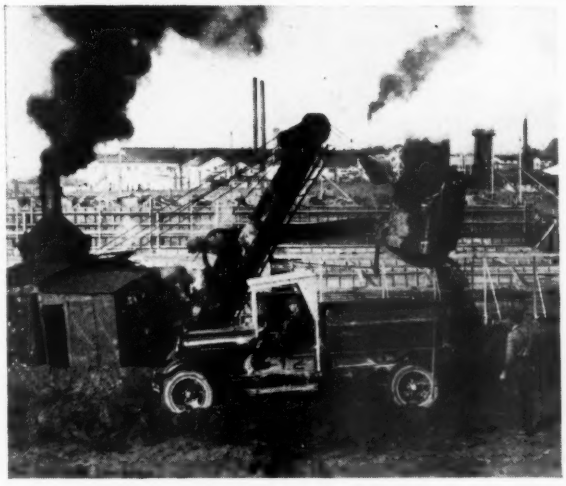
These views taken on the site of the new mill of the Puget Sound Pulp & Timber Co. show construction in progress early in November.



Work Being Pushed At Everett

The order of the day at Everett, Wash., down there on the waterfront on the old shipyards site, is well summed up in two words. They are:

"HURRY UP!"

The reason for all this speed and bustle is that the Puget Sound Pulp & Timber Co. hopes to begin production in their new 175-ton bleached sulphite pulp mill in the early summer of 1930. And that means put the high-ball on the construction work now.

At the end of the first week in November some 1250 piles had been driven for the wharf and bulkhead and a 20-inch electric dredge was at work deepening the channel in front and removing 115,000 or more cubic yards of silt from the river bed to dump behind the riprap and to fill in other low places in the tract. The principal purpose is to clear the channel for seagoing vessels wishing to dock at the pulp company's own wharf.

A portion of the dock has already been capped and decked and on this a central concrete mixing plant has been established. The mixing plant includes a stiff-leg derrick and a clam shell bucket for handling materials from barges. From this central mixing plant cement is delivered in trucks to the different buildings as pouring requirements dictate.

Excavation work has practically all been completed.

The brick work on the stores and repairs building is 50 per cent completed while the framing and loading platform is just about finished and the grading and back-filling here is now under the head of "finished business".

Foundation work for the digester building has been completed and the steel work for this unit is now going up. Blowpit foundations are being poured.

All the excavations for the acid plant, including the cooler, burner and storage rooms, towers and storage tanks have been completed. Foundation slabs for the Jenssen acid towers are being poured, as are also the other foundations in this unit.

The piling is all in for the bleach liquor building and the dredger is now filling in around this foundation. The screen and bleaching building is not quite so far along, but the excavations are completed and the piles are more than half driven.

Another 30 days with construction continued at the present swift pace will show a changing skyline on the site, with two of the buildings completed and steel framing on the others rising into the air.

Engineering and design of the Puget Sound Pulp & Timber Co. mill is under the supervision of the New York consulting engineer, Hardy Ferguson, and J. F. McCarthy is resident engineer who is handling the details on the job.

President Ossian Anderson made a trip to New York on business for the company in October and returned about the second week in November.

Jaite Bag Plant to Enlarge

The output of the Jaite Bag Co.'s cement bag factory at St. Helens, Ore., will be materially increased by the installation of a new machine which will be shipped immediately, according to H. Jaite of Jaite, O., president of the company, who visited St. Helens late in October.

The machine is the latest type with all improvements, makes the bags, prints, sews and counts them in a continuous operation. It is 78 feet in length and will turn out 80,000 bags in a day. If the new machine justifies itself and the market continues to increase, this will be but the first of a series of improvements made in the St. Helens plant.

Newsprint and Ink Penetration *

By I. H. ANDREWS
Powell River Co., Ltd.

AS we read our favorite paper from day to day, we are, for the most part, interested in the news contents. We are not, perhaps, on the alert to notice defects in the news, and the presence in the paper of an occasional oiliness or dirtiness will pass unnoticed. Thru the vigilance and care of the publisher, we are enabled to enjoy a clearness of print, and we read the news, cast our paper aside, and seldom think of the labor and attention necessary to secure a print whose quality, by its very clearness is passed by without comment.

The question of faulty printing has been the subject of discussion between the ink manufacturer, the publisher and the paper manufacturer for years, each in turn considering the other at fault but without a denite solution of the problem being reached.

It is the object of this paper to present the factors which have a bearing on the problem of the production of good printing with the idea in mind of clarifying the situation.

How the Ink Adheres

Paper is a mass of felted fibres in the form of a sheet and as such has numerous small irregular spaces between these fibres. Newsprint ink is made up from finely divided carbon black pigment, ground into oil, which is chiefly, if not all, a mineral oil and thus is a non-drying ink, that is, one which depends upon absorption of the oil into the pores of the paper and not upon a drying by the action of oxidation.

The carbon black pigment is held by the fibres on the surface of the paper while the oil is drawn in and spreads itself over the surfaces of the individual fibres, with which it makes contacts, until it comes to a state of rest. Under certain conditions, quantity or viscosity, the oil will spread until the fibres forming the opposite side of the paper are reached, where it will show as a brownish stain on that side. This stain is known as show-through or ink penetration, of which complaint is commonly made. If less ink is used to prevent this condition then danger from grayness of print is encountered.

Groundwood Determines

The composition of average newsprint is about 75-80 per cent groundwood and 25-20 per cent sulphite pulp. From this it will be realized that, to a large extent, the characteristics of the groundwood fibres will be a governing factor in the characteristics of the finished paper. Groundwood pulp does not possess to any degree, uniformity as to fibre size or smoothness of fibre surface, as does chemical pulp; rather it is composed of fibres varying greatly in length, fineness and surface exposed. Thus groundwood fibres are excellent medium for taking up the oil of the newsprint ink. In the use of groundwood, as a low cost pulp, the part it has played in the development of the high speed printing of news as regards the use of such rapid drying and low cost ink is newsprint ink, has been lost sight of too often.

As the freeness of groundwood increases the fibre length becomes shorter and the fineness greater, thus increasing the total surface exposed. From this one might expect that newsprint made from groundwood of the lower freenesses, other things equal, would have better resistance to ink penetration; and since the fibres would felt closer together, a finer finish would result. Smoothness of finish is obtained by passing the paper through the calendar stack, where the steel rolls by reason of their weight press the fibers closer together, and by friction iron out the paper surface. Calendering then produces a smoothness of finish which is highly desirable. Unfortunately, however, as the fibres are pushed tightly together some of the total surface will thereby not be available for the oil of the ink to spread over.

Fineness of fibre then makes for better finish, it makes for greater resistance to ink penetration; and calendering makes for better finish and less resistance to ink penetration. They both tend to lower porosity. The lower the porosity the lower the viscosity of the ink it is necessary to use; but increased finish demands less ink, so they offset each other to some degree.

Variables

From this reasoning it would appear that the ideal would be to produce the finish on the paper with as little pressure as possible, and in this way there would be conserved the fiber surface—resistance to ink penetration—now lost through the heavy calendering, and with the higher porosity attained an ink of higher viscosity could be used, which again means more resistance to ink penetration.

The finish of newsprint can be determined to some degree of satisfaction by means of the Ingersoll Glarimeter; porosity, too, may be measured. But there is no means known whereby the actual surface presented by the fibres for ink resistance can be ascertained; nor is there any way of determining how much ink is necessary in relation to the degree of finish. Neither may we determine the viscosity necessary in relation to the porosity, unless they be under test conditions on an actual printing press.

The variables in the manufacture of newsprint affecting the printing quality are groundwood freeness, moisture in paper, calendering and percentage of sulphite. The latter two are fairly well set. By control of the former two, that is, groundwood freeness and moisture, the paper should be fairly constant.

From the standpoint of ink, the properties which come into play are coefficient of viscosity, fineness and per cent of black carbon pigment. Printing inks are manufactured by the different companies to their own formula which are apparently satisfactory as to fineness and per cent of pigment. It is supplied at varying degrees of viscosity.

It will be readily understood that an increase in the temperature of the ink would result in a decrease of

*Address delivered at annual meeting of Pacific Coast Section of TAPPI, Tacoma, Washington, October 5, 1929.

its viscosity—or in other words as the ink is warmed it becomes thinner and will spread over a correspondingly greater area. Thus having the same effect as far as ink penetration is concerned as if more had been used.

What the printer desires in addition to mechanical perfection is qualtiy of print. He wants a clear black impression, devoid of dirtiness, smudges or penetration. Along with this he aims at the lowest possible ink consumption.

For best results he must select an ink of as high viscosity as possible.

How important is the selection of ink of the correct viscosity is revealed by the following illustration:

A customer reported trouble was being experienced as a result of ink penetration. A sample of the ink was forwarded and this was compared with that used by another customer with perfect satisfaction and with another sample the customer had under consideration. A series of viscosities were determined on these three inks and these are found in the following table.

For purposes of convenience the satisfied customer will be referred to as A and the ink No. 1, and the dissatisfied customer as B and the unsatisfactory ink as No. 2, No. 3 being the alternative which B had under consideration.

VISCOSITY CO-EFFICIENTS OF INK, RELATIVE TO WATER AT 68 DEGREES F

Temperature of Ink	No. 1 Ink Customer "A"	No. 2 Ink Customer "B"	No. 3 Ink "B" Alternative
60 Degrees F	5,550	3,800	5,525
65 Degrees F	4,300	2,500	4,100
70 Degrees F	3,310	1,654	3,110
75 Degrees F	2,600	1,000	2,400
80 Degrees F	2,120	955	1,908
85 Degrees F	1,800	935	1,600
90 Degrees F	1,610	920	1,450

Referring to the table it will be noted that the No. 1 ink used by "A" with excellent results is about double the viscosity of the No. 2 ink used by "B," which was occasioning the trouble. Subsequently on the adoption of No. 3 ink by "B," which, as the table shows, had a viscosity very similar to No. 1, the difficulty was immediately overcome.

A further interesting point is the large variation in the viscosity of the ink with temperature and upon reference to the table again it will be noted that a change in temperature of about 150 degrees F will result in a change in the viscosity in the ratio about 2.1.

It would seem then that every care should be used in the selection of the ink in the first place; and moreover it would appear that some form of thermostatic control is almost essential to the maintenance of uniform and consistent results.

With the ink supply regulator with which some newsprint presses are now equipped, known as the "spray type fountain," the mechanism is such that a constant volume of ink is supplied per minute regardless of temperature variation and thus is delivered a constant volume of carbon black pigment per minute to the paper. Thus the temperature variation here can have no influence on ink penetration. Not so, however, with the old type fountain; for in this case a variation of the ink supply will cause a variation in the volume of the ink to the paper per minute; and unless corrected by resetting the feed, will produce a variation in the blackness of the print and penetration as well.

From a study of the printing process of newsprint it seemed logical that temperature control should be applied to the ink as it is applied to the paper and the oil of the ink as and after it is drawn into the paper.

By test it was found that temperature variations of the ink supply within a range of about 30 degrees F did not have an appreciable bearing on the temperature of the ink as it was applied to the type; but at this particular test it was found that friction heat from the rolls caused the ink, as applied to the type, during the course of an ordinary afternoon run of about two hours, to warm up 12 degrees F.

Now a rise of 12 degrees F would increase the spreading power of the oil some 40 per cent, according to the viscosity tables, but during the test there was not noticed any increase in penetration and as the paper did not appear to have any excess capacity for oil, the only conclusion arrived at was that the paper, which had remained uniform in temperature, had kept the oil of the ink at a fairly constant temperature, too; which is reasonable when the small amount of ink in comparison to the bulk of paper is considered.

Temperature Important

It appears the temperature of the paper is a controlling factor in the maintenance of a uniform viscosity of the oil of the ink at the vital spot for ink penetration. Then ideal conditions necessary for a uniform quality of print in this respect would be to have the paper at the time of printing and for a period afterwards, at a uniform temperature. This temperature should be the maximum it will encounter. An ink then should be selected of as high a viscosity as possible—one that will just print the paper without smudging.

Should it not be practical to maintain the paper temperature throughout the year at a maximum summer temperature, the alternative would be to have an ink of viscosity suitable to winter paper temperatures and another of greater viscosity to suit summer temperatures. Of course it would be necessary in either case to keep the paper temperature as nearly uniform as possible. If there is tendency to ink penetration in the summer with the particular ink a plant is using, then better results should be obtained in the winter time with the same ink. If it is found that such conditions are obtained it is logical to assume that a thicker ink might be used during the summer.

Frank Co-operation

If the press were running steadily for a longer time than during the tests it is conceivable that the ink to the type might be warmed up more and possibly reach a point where it, too, along with the paper temperature, had an influence on the ink penetration.

Might I in conclusion impress the fact that there is ever a march forward in every branch of industry. New methods, new products, new demands. There has never been a period in industrial history when frank co-operation between the component parts of industry is more desirable and more essential than today.

This is as true in the particular field of the newspaper as in other sections of industry. The demand today is for a larger and faster output of news. The continuance of a good and the attainment of a better quality of print under these conditions cannot be confined to one side of a triangle. It may be realized only through the co-operation of the paper manufacturer, the ink maker and publisher.

Westminster Will Spend $2,000,000 Rebuilding

Plans for reorganization of the Westminster Paper Mills, Ltd., and rebuilding of the plant at New Westminster, B. C., which was destroyed by fire last summer, have been completed, and $2,000,000 will be spent in carrying out the reconstruction program.

Tenders for the first unit, involving the expenditure of about $850,000, will be called in November, according to President J. J. Herb.

"We are anxious to get things running again just as soon as possible," said Mr. Herb. "Production is scheduled to start next February. A second unit, to cost about $1,200,000, for the manufacture of book and printing paper, will be erected a few months after the first unit is ready for operation. The new mill will employ about 200 and the payroll will average more than $250,000 monthly."

Back of this announcement is the story of an aggressive campaign on the part of Mr. Herb and others to get local capital interested in the project—a campaign which proved extremely successful. Mr. Herb personally guaranteed a considerable proportion of the total amount necessary for rebuilding the mills, but he desired that there should be participation in the mill's financial activities by representatives of the community in which it was established. In his efforts to raise new capital in New Westminster Mr. Herb had the energetic co-operation of the city council.

B. C. Directors

The reorganization resulted in the election of the following officers: J. J. Herb, president and director; R. F. Arnett, vice-president and director; H. M. Lord, secretary-treasurer and director; W. B. Farris, K. C., director; James Hinton, North Vancouver, director, and W. J. Roemer, Appleton, Wis., director. Four more British Columbia directors will subsequently be elected.

It has been the effort of the officials of the company, ever since the fire last July, which completely destroyed the mill, to arrange for the transfer of all the stock held by eastern interests to British Columbians. A sufficient amount of the eastern stock has now been purchased by British Columbia men and with the additional amount which is still available for British Columbia investors, practically entire control of the company will soon be vested in British Columbia shareholders.

The reconstructed mill will have more modern equipment and a wider variety of products than has heretofore been attempted, according to R. F. Arnett, vice-president, who will be in charge of the New Westminster office. In the matter of diversified production the mill will be unique in Canada, he says, and the equal of any in the United States.

Two Units

The new mill, completed, will consist of two units. The old Yankee type machine will be replaced by a combination machine about twice the size of the old one, to produce a line ranging from the lightest tissue to heaviest wrapping papers. The machine will be equipped with rolls for marking into the paper different designs and trade marks of individual companies, creating a specialty advertising paper.

These special marking rolls are said to be controlled under patents held by the company exclusively. The company already has several large contracts for paper so marked.

The rebuilt mill also will produce printed fruit wraps, printed waxed bread wrappers and other protective food wrappers. These jobs will be taken care of on the first unit. Toilet paper, paper towels, paper serviettes, embossed and printed, will also be a part of the output. Waxed papers of all descriptions and many other specialties including the HY-G line of napkins, patents for which are controlled by the company for the British Empire, will also be manufactured.

The first unit of the mill will consist of a two-story machine room building 60x230 feet, and a three-story finishing building 100x160 feet, all fireproof construction, together with a wharf to be used for warehousing, approximately 60x260 feet.

During the enforced shut down, co-operation has been had from other producing mills in Canada so that the company brands have been continued on the market, and it is expected that the company will be quick to re-establish itself in its former sales fields. The market for products of the Westminster Paper Mills has in the past extended to 17 different countries, including China, Japan, India, Australia, New Zealand, South Africa and South America.

Everett Mill Will Use Two Pulp Dryers

The new 150-ton bleached sulphite pulp mill of the Puget Sound Pulp & Timber Co., now under construction at Everett, Wash., will install two fourdrinier machines for drying pulp. These machines, manufactured in Sweden by the Karlstad Machine Works, and sold through A. H. Lundberg, Seattle representative, will each have a daily 24-hour capacity of 80 tons of pulp.

The machines will be equipped with wires 154 inches in width, having a working width of 144 inches. The wires will be 65 feet long.

There wll be three presses, the first two with cylinders of 29½ inches in diameter and the third, which is of extra heavy construction, will be 31½ inches in diameter. With these presses a pulp 46% to 48% airdry is guaranteed by the manufacturers.

A Pederson pre-drying system will be installed between the second and third presses. This consists of two drying cylinders over which the pulp web is run before the third and heaviest press gives it a final squeeze. The action of the pre-dryers is to warm up the water in the pulp so as to reduce the viscosity and thus induce it to leave the fibres more readily under pressure.

Each machine will also be fitted with three rotary suction boxes, two of which will have grooved wells, these devices taking the place of flat suction boxes to be found on fourdriniers ordinarily. The claim for the rotary boxes is that they are much easier on the wires.

There will be 32 five-foot dryers on each machine. The pulp web will have a maximum speed of 120 feet per minute.

Bellingham Mill Disputes Taxes

Following a protest that its 1927 taxes were too high, the Pacific Coast Paper Mills, Bellingham, brought suit against Whatcom county. Early in October an effort was made to settle the matter out of court. The paper company claims that taxes were assessed at about 50 per cent too high a valuation. The assessed valuation was $84,425, and the company held that the correct figure should have been $50,230.50.

Pacific Coast Paper Mills at Bellingham, Wash., report heavy business that keeps three shifts going. Products include a wide variety of toilet papers, towels and similar products.

Copyright Spence Airplane Photos

The Inner Harbor at Los Angeles reveals a development typical of Pacific Coast growth

Los Angeles Harbor Typifies Coast Growth

A billion dollars' worth of cargo in a year! That's a lot of freight. But the figures in themselves are far more impressive when used in their more important capacity, that is as a barometer of Pacific Coast growth. The value of cargo passing over the wharves of Los Angeles Harbor for the fiscal year ending June 30, 1929, amounted to $1,038,308,246. The full import of this figure is appreciated when comparing the billion dollar total to the $76,549,742 total value of cargo handled in the fiscal year 1915-16.

Los Angeles, southern metropolis of the Pacific, has made rapid strides in industry in the past one and one-half decades. While many still hold the view that Los Angeles Harbor is almost entirely an oil and lumber port, General Manager Burt Edwards points to statistics which show the rising volume of general merchandise. A study of the following statistics supplied by the Los Angeles Harbor Department will reveal one more reason why the Pacific Coast citizens view the future with optimism.

New Bag Machines at Longview

Four new Potdevin bag machines, to manufacture extra width millinery and notion bags, are being installed in the Longview Fibre Company's plant at Longview, Wash. The new machines will bring the total number in the department up to thirteen. They are expected to be in operation shortly after the middle of November.

LOS ANGELES HARBOR STATISTICS—FOR FISCAL YEARS JULY 1ST TO JUNE 30TH

Year—	No. Ships Entering Harbor	Total Tonnage Over Wharves	Value of Cargo	General Merchandise Tonnage	Gross Revenue	Approx. Value of Property (Excl.of Land)
1914-15	2,620	1,739,548	*	435,250	$ 60,333.71	$ 3,272,756.28
1915-16	2,787	2,051,785	$ 76,549,742	533,946	69,113.07	4,210,376.22
1916-17	2,320	2,312,387	69,553,873	361,375	118,323.45	4,833,549.34
1917-18	2,318	2,236,535	98,953,652	376,296	237,907.50	4,857,020.54
1918-19	1,967	2,380,622	86,481,470	307,409	262,516.85	4,947,780.39
1919-20	2,886	3,528,280	153,919,010	298,447	307,204.75	5,635,887.10
1920-21	2,993	4,296,254	188,067,509	541,905	395,316.75	7,463,845.70
1921-22	3,816	6,533,589	284,399,404	636,156	703,686.71	8,737,241.65
1922-23	5,476	18,870,102	555,950,011	1,531,066	1,142,779.51	12,262,748.20
1923-24	6,215	26,553,066	643,583,338	2,537,835	1,809,828.84	18,015,833.36
1924-25	5,901	22,268,421	671,406,570	2,398,366	1,597,880.06	21,791,241.48
1925-26	6,417	23,067,365	804,014,311	2,760,534	1,694,490.04	25,614,614.87
1926-27	6,944	25,133,963	910,822,189	3,095,108	1,877,539.09	**21,794,310.85
1927-28	7,532	25,402,262	879,079,986	3,139,849	1,968,756.82	22,628,417.16
1928-29	7,888	26,099,245	1,038,308,246	4,151,709	2,148,749.71	23,092,071.95

*Not available.
**Values adjusted.

Nearly 8000 ships entered Los Angeles Harbor in the last fiscal year, handling cargoes valued at more than one billion dollars.

Jesse H. Neal Appointed A. P. P. A. Manager

A letter from President S. L. Willson of the American Paper & Pulp Association announces the appointment of Jesse H. Neal as general manager of the association, a new position created, in which Mr. Neal's entire time, energy and ability will be devoted.

Mr. Neal for 11 years was widely known both here and abroad as the executive secretary of The Associated Business Papers, Inc. He has been secretary-treasurer of the Associated Advertising Clubs of the World; treasurer, National Better Business Bureau, director, federal division of advertising during the war; secretary, national advertising commission; secretary-treasurer, publishers advisory board; director, New York Advertising Club; director, Technical Publicity Association, and vice-president, Trade Association Executives. In connection with these various activities he represented national publishing interests before committees of congress and government departments. He went to New York from St. Paul, Minn.

JESSE H. NEAL
General Manager
American Paper & Pulp Association

Hearing on Olympic Railroads

Indications are that the Interstate Commerce Commission will grant permits to both the Port Angeles Western, to construct a common carrier railroad from Forks to the Hoh river, and to the Northern Pacific and Union Pacific roads to construct a common carrier from Aloha on Grays Harbor to the north bank of the Hoh, as a result of the hearing conducted in Aberdeen, Wash., on October 18 and 19, before Haskell C. Davis, examiner for the commission.

Officials of all three roads expressed the view that both permits were certain to be granted since there was not one single word of protest to the building of either line. The two lines will tap the huge timber wealth of the western slopes of the Olympic peninsula, notably that of the watersheds of the Queets, Hoh and Bogachiel.

Highlights of the hearing at Aberdeen follow:

The Northern Pacific-Union Pacific road will be 64½ miles long, will cost $6,421,399 and will bridge the Hoh river. The revised plans of the two roads called for building across the Hoh river, although the previous plans had been to build just to the Hoh. Even this development failed to bring a word of protest.

That power companies, notably the Grays Harbor Railway & Light Co., are considering development of hydro-electric projects on the Queets and Hoh. W. W. Briggs of that company said his firm had made an estimate and found that the Queets will develop 10,000 horsepower at a cost of $2,000,000 and the Hoh will develop 25,000 horsepower at a cost of $6,000,000—that at the present rate of growth of Southwest Washington, at least, this power will be needed in 10 years; that the cost of building these plants without a common carrier road would be prohibitive.

That thirty billion feet of timber are tributary to the two proposed railroads; that at least a billion feet of hardwood would be available.

That both the state and federal government timber and land men favor the two lines but insist that the construction of these lines would not mean that state and federal timber will be thrown upon the market. Representatives of both governments said they would not offer timber for sale until the market was right and there was assurance of complete utilization—both stressing their desire to have the pulp wood utilized.

That the proposed lines would assure competition for timber and bring better prices.

That the Port Angeles Western line would be 24½ miles long from Forks to the Hoh, that it will cost about $1,031,510.

That the Port Angeles Western owners represent sufficient capital to construct and operate the line.

That the Port Angeles Western road from Tyee to Forks is almost completed and that the other line will be started as soon as the permission is obtained from the commission.

Chris Morganroth of the Washington Pulp & Paper Corp. of Port Angeles testified on behalf of the Port Angeles Western. He declared that the pulp material in the district, before many years, will be vitally needed by pulp mills in his district. He intmated that the present sources are fast being drained.

Morganroth said that the Port Angeles Western would reach 16 billion feet of timber and seven billion already on the ground as a result of the "blow-down" of 1921. He said his firm already had acquired blocks of timber south of Forks and that pulp and paper mills, shingle mills and fiber mills of Port Angeles were in need of logs. At present some logs are coming from Neah bay, he testified, but winter roughness of waters made this source precarious.

Following the conclusion of the hearing rumors on Grays Harbors were out that a second large pulp mill and a large pulp fiber board mill would locate in Hoquiam or Aberdeen if the road permit was granted. This statement was made by Gaylord Adams, Hoquiam banker and director of the Grays Harbor Lumber Company, a Blagen mill. C. G. Blagen has considered the construction of a pulp mill at Hoquiam for some time.

It was further stated by W. W. Briggs of the Grays Harbor Railway & Light Co. that he knew of pulp and paper interests considering building mills further in the peninsula if the roads were put through.

St. Helens Stocks and Bonds Listed

Bonds and common stock of the St. Helens Pulp & Paper Co. have now been admitted to trading on the Portland Stock and Bond Exchange.

The company has shown continual increased earnings and is most efficiently and profitably operated. The capital structure consists of $1,000,000 first mortgage sinking fund 6½ per cent gold bonds, of which $75,000 have been redeemed. This issue was marketed in October, 1928, by Blyth, Witter & Co.

This bond issue is followed by 150,000 shares of common stock, par value of $10 each, all outstanding and mainly held by business men of Oregon and the Pacific Coast. The common stock has paid dividends of 2 per cent, the last dividend being paid on October 1, 1928.

As an indication of the prosperous condition and efficient management, the statement issued at the time of the sale of the first mortgage bonds shows that the interest was earned 5.8 times, 2.7 times the interest for sinking requirements.

Pulp Will Change Logging Methods

(Continued from page 29)

sled to be done by the same two men who felled and cut the tree.

3. Yarding should be done by using a "30" Caterpillar tractor on ground not too steep. Where ground prohibits use of tractor and sleds the trees can be yarded to landing by use of winch attachment attached to caterpillar and cut to cord wood at the landing.

4. Loading should be done by the same caterpillar, using a standard cargo boom attached to a fair-sized tree at the landing, thus avoiding use of guy lines. The cord can be lifted on the car direct, enclosed in a cable strap, using small 2 x 2 strips for clearance of choker and binding the load on the car. Regular 40-foot and rack flat cars should be used to save costly loading and unloading. Eighteen cords of wood can thus be loaded on each car equivalent to 9 M feet log measure instead of 4 M, and hauled to the pulp mill on relatively low pulp wood rates instead of expensive log rates.

5. In the months of September to May no peeling should be done in the woods. Splitting and peeling can then be done more economically at the pulp mill.

6. The cost of performing the above work and delivering a cord of hemlock is estimated as follows, based upon some actual experiments conducted under favorable conditions, using sleds:

	Per Cord
Stumpage @ $1.50 per M log scale	$0.75
Contract cutting, men working in pairs and loading or piling, sawing by hand and peeling	2.75
Hauling and loading on cars including depreciation (Caterpillar)	.80
Average freight per cord through logging works and private road, including return of empty cars	.75
Freight rates on common carrier up to 70 miles	1.10
Total cost, including stumpage, delivered at mill for peeled wood	$6.15

When wood is not peeled deduct 75 cents per cord for cutting and peeling.

I feel that the above figures are fairly representative for an operation under average favorable conditions, and wish to call to your attention that with the allowance of 75 cents per cord the logger stumpage owner benefits by first deriving a net return from the lands logged clean of at least $12,000.00 per section of timber land. This added income is a net profit which is now not possible when these small trees are left to be destroyed.

With a market available practically anywhere in the state within reach on freight rates as above stated, it would seem the practical thing for loggers to enter into this salvaging and more complete utilization, particularly in view of the fact that the investment required to start an operation of this kind is insignificant and by salvaging the stumpage just mentioned there is an additional earning in the freight haul on the logging road which will help to bear the cost of railroad construction and maintenance in the logging works.

No doubt many loggers will contend that there are some disadvantages in permitting cutting of small trees ahead of the regular felling and bucking operation now in practice, maintaining that the small stumps left on the ground will tend to increase breakage of the larger timber when felled. I will submit to your judgment that in the first place the stumps that are under merchantable size of 10 inches to 12 inches are relatively small and can be cut close to the ground and therefore on very rare occasions will prove of any disadvantage in laying down the larger trees.

Experience has been had along this line already in cutting piling and poles ahead of logging operations, and no serious disadvantage has resulted. I claim that the disadvantages will be offset by the advantages in selective cutting of these smaller trees, eliminating that much rubbish from the ground before the whole tract has been felled, which rigging men now have to contend with while yarding out the larger logs.

The pulp mills of the state can afford to pay from $6.00 to $7.00 per cord for clean hemlock forest wood and can afford to pay a little more if a percentage of spruce is included, all of this depending on the general quality and appearance of the wood. On an average stand of 30 to 40 M feet of merchantable hemlock per acre there is approximately 25 M feet of available pulp wood, all of course depending on the general nature and growth of the trees in the various localities.

In conclusion, let me state that a market is available in the pulp mills of the state for large quantities, and a continually expanding market for hemlock logs which will work in a happy combination in furthering this one of the most important wood using industries in the Northwest. If loggers will engage themselves in solving this problem with the same amount of energy and ingenuity with which they have solved other problems in the woods, there is no question but what it will return a profit and serve to help expand the industries of the state.

Improvements at Pacific Straw Board

George A. Sweet, secretary of the Pacific Straw Paper & Board Co. at Longview, has announced that within 60 days installation of pulp grinders in the company's plant will be underway. A new building to house the grinders will be erected. Logs will be bought on the market and taken to the mill, which is located on the Cowlitz river.

A new pasting machine is now in operation at the plant, and later on a lining machine will also be installed.

A problem that has long bothered the plant superintendent has been solved with the installation of a new water filter. Fifteen wells have been dug, to a depth of about 38 feet, and a single pump draws the water through the special filtering apparatus. It has been found impossible to use river water for the finer grades of board.

The plant is now, and has been for the past three years operating on a practically perpetual schedule, 24 hours a day the year around.

Penn Salt Shows Good Earnings

Pennsylvania Salt Manufacturing Co., parent corporation of Tacoma Electrochemical Co., for the year ended June 30, 1929, reported net profits after all deductions of $1,495,939.51. The record of continuous dividends since 1863 was maintained with payment of a dividend for the year at a rate of 10 per cent and an additional dividend of 2 per cent ($1 per share) payable October 15, 1929.

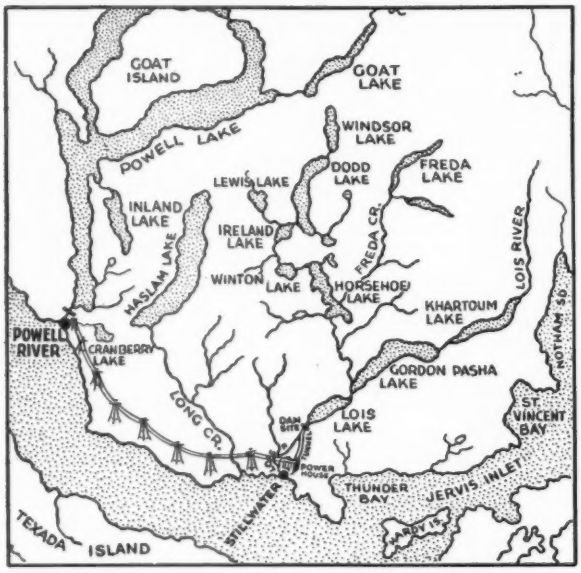
Earnings for 1928 were $1,240,453.91. The balance sheet as of June 30, 1929, showed a net surplus account of $6,348,151.24.

Powell River Expansion

(Continued from page 26)

monthly and most of this is purchased in the open market, so that for years the company has been an important factor in the prosperity of independent logging operators on the British Columbia coast.

At a time when many other mills have been obliged to curtail production Powell River Co. has been increasing its output because of the fact that its tidewater location makes posible the development of export trade on extremely advantageous terms. About 85 per cent of



The map shows the proposed development of power from the Lois River and Gordon Pasha group of lakes to serve the mill at Powell River

the output is now being disposed of in foreign markets. The company's sales have increased enormously in Australia since the British Empire preferential trade agreement became effective. The company's market extends right down the coast to South American countries and through the middle west and southwestern states. Sales have recently been made to points as far distant as South Africa. Every successive year witnesess expansion of the company's market.

Powell River Company, An Institution

First surveys began around Powell River as far back as 1907. The first paper was shipped in April, 1912. In 1926 the company, by this time a premier industrial institution in British Columbia, completed a far-reaching expansion program, the effect of which was to raise the daily capacity to 500 tons of news print. Powell River Company today stands the largest single mill unit on the Pacific Coast.

An integral part of the Powell River institution is the town site where about 5,000 people find home and happiness. It is a thriving and well-kept little city. Among other recreational facilities are a private golf course, bowling green, football field, tennis courts, community hall and athletic building, a salt water beach and a 30-mile lake back of the city where pleasure boating and fishing contribute much to the joy of living.

In the present program of expansion the work will fal lupon the company's own executives and engineers. The man who will shoulder the details is Robert Bell-Irving, mill manager. It is in his hands that the actual carrying out of the work will be placed.

A. E. McMaster, general manager, officially has his offices in Vancouver, but his duties make him quite an ambassador for the Powell River Co., and you are likely as not to find him on one of his many journeys about the country. Right now he is back in Minneapolis to confer with some of the executives there.

Direction of the company's affairs is vested in Sheldon D. Broks, executive vice-president with offices at Vancouver. He has been on the Powell River staff since 1911. Born and raised in Minnesota, he practically grew up in the forest industries.

Audit Northwestern's Books

Auditing of the Northwestern Pulp & Paper Company's books was expected to be completed early this month by Sawtell Withington & Co., Portland accountants, who are working with the corporation commissioner's office. The finished report is to be presented at a special meeting of company stockholders to be held in Portland some time this month, it is understood.

A clear-cut rumor persists that steps will be taken at the foregoing meeting to form a new company to go ahead with plans for building the Astoria mill. Unofficial reports are to the effect that tentative plans for financing the reorganized company are well under way.

Bank Discusses World Pulp and Paper Industry

The Canadian Bank of Commerce in its Monthly Commercial Letter is publishing a series of three articles on "The World Pulp and Paper Industry," which all should find interesting.

The second article, published in the October letter, discusses the causes and effects of the migration of the newsprint industry within the past decade from the United States into Canada. Commenting on the rapid expansion which caused a near crisis in news print last winter the letter remarks:

"It is only fair to say, however, that similar conditions arose in every other large producing country and that the length of time required in the construction of paper mills makes it necessary always to have some surplus capacity."

The writer of these letters regards the recent agreement in the news print industry as a distinctly hopeful sign, and says:

"The present agreement between Canadian newsprint manufacturers meets all the requirements of a movement sound in principle and beneficial in practice. It has placed the industry in a better position than at any time in the last two years and assuming that operating costs can be reduced through mergers and the practice of economy the industry should be within the next three years on a more profitable basis than at present. Since the plan became effective the mills have operated at about 85% of their rated capacity, a high figure in any industry but, in accordance with the present policy, not above market requirements, which are about 14% greater than a year ago."

Crown Zellerbach Declares Preferred Dividends

Crown Zellerbach Corporation, at an October meeting of the directorate, declared the regular quartely dividend of $1.50 per share on the convertible preferred stock, payable December 1, 1929, to stock of record November 13, 1929.

The directors also declared the regular quarterly $1.50 per share on the preference stock Series "A" and regular quarterly $1.50 payable December 1, 1929, to stock of record November 13, 1929.

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Fig. 1. General view of Great Lake Paper Co., showing the general layout of the buildings from the chipper house at extreme right to shipping shed at left.

The World's Biggest PAPER MACHINE IS IN CANADA

Great Lakes Paper Company, Ltd., at Fort William, Ont., has newsprint machine 304 inches wide and 308 feet long.

By A. K. WEST.

THE new mill of the Great Lakes Paper Co. Ltd., at Ft. William, Ontario, is the latest and largest of a series of newsprint mills built by the Backus Brooks Company to utilize the pulpwood from extensive limits in western Ontario. The mill is strategically located both as regards delivery of the raw material, and the shipment of the finished product, which is supplied to a number of newspapers in both Canada and the United States. Wood can be delivered at the mill either by railroad; both the Canadian National and the Canadian Pacific tap the section where the mill is located, or by river. The mill is on the Kaministiquia River, which provides means of transportation from a large section west of Lake Superior. A greater part of the wood is, however, shipped by rail. Deliveries may be made either by barges towed by steamers, from the Lake Superior ports of Fort William or Port Arthur.

The mill proper consists of a number of buildings, including a power plant, wood room, screen plant, filter house, slasher and finishing room, sulphite plant, and the machine room containing the paper machines, and other buildings for the final processes. The arrangement of the buildings, which is shown in Figure 1, is a modification of the straight-line production; the power plant being at one end of the mill, and the finishing room at the other. The buildings which may be described as preliminary processes, such as sulphite cooking, etc., are arranged around the river end of the mill, to allow a continuous flow of material from the wood room to the machine chests. The existing mill has a capacity of 350 tons per day, but the whole layout of building and equipment is such that it will be a comparatively simple matter to increase the capacity if future development should make such a course advisable.

In addition to the features [illegible] are others in connection with the mill that are of considerable interest. One is the paper machines that have been installed, which were [illegible] the Bagley and Sewall Company [illegible] other a 304 [illegible] machine.

[illegible]

'Engineer, Timken Roller Bearing [illegible]

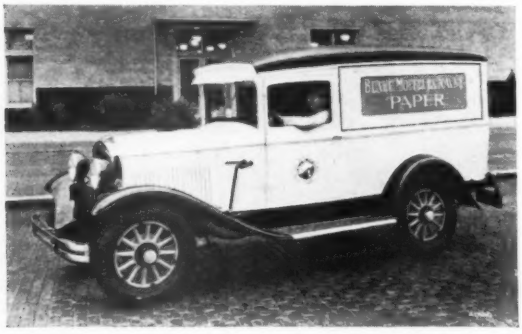
T-R-A-D-E - T-A-L-K

Devoted to the Paper Trade of the Western States

Paper Trade President Visits San Francisco

W. D. McWaters, manager of the Portland division of the Zellerbach Paper Co. and president of the Pacific States Paper Trade Association, left early this month on a business trip to San Francisco.

"No plans have been developed thus far for the thirteenth annual meeting of members of the paper trades," said Mr. McWaters. "I imagine most of this work will be handled in the south. Arrangements will probably not get under way before February. It's quite probable that the 1930 convention will be held at Del Monte, although there is nothing definite to announce as to time or place."



Blake, Moffitt & Towne's branch in Seattle has added a new light truck to dash about the city for printer service on an 1½ hour schedule.

Lane Paper Co. in New Quarters

Due to increasing lines handled, the Lane Paper Co., Los Angeles, has taken over the building formerly occupied by the Pacific Paper & Envelope Co., at 424 Boyd Street, and will retain the original location of the business at 320 Omar for dead storage purposes.

Walter F. Lane says the expansion doubles the former available floor space.

The offices have been moved to the Boyd Street address and make a most attractive appearance. A large stock room has been fitted up in the rear of the offices. Mr. Lane states that he has added the Groveton Paper company's line of bonds and ledgers. Three additional salesmen have been added to the Lane company's sales force.

B. M. & T. Sales Managers Meet

Northwest sales managers of Blake, Moffitt & Towne got together for a conference in Seattle on October 25 to discuss sales policies and similar questions.

The meeting was attended by Walter W. Huelat, vice-president and sales manager of fine papers, and C. L. Shorno, vice-president and sales manager of coarse paper and stationery, both of the Portland branch; Frank E. Jeffries, president, and L. Z. Hall, sales manager, both of the Tacoma branch, the Tacoma Paper & Stationery Co. and J. C. Whitelaw, sales manager, and J. M. Thompson, manager, of the Seattle branch of Blake, Moffitt & Towne.

Special Show to Introduce New Line

Carter, Rice & Carpenter, of Denver, distributors in the Rocky Mountains for Hammerhill papers, used an unique method in "putting over" New Management Bond, the new watermark product of the Grays Harbor Pulp & Paper Co., Hoquiam, Wash. A booster supper and exhibit was put on at the Chamber of Commerce on October 31, to which printers, advertising men and certain other consumers were invited.

J. Harry Custance, general manager of the firm, acted as master of ceremonies. Speakers were Harrison Baldwin, sales manager for the Hammerhill Paper Co.; Ellis Frampton, advertising manager, and Earl Conner, district sales manager of the same concern. It was a regular Hammerhill party, even to the overseas caps worn by the guests. A similar supper and exhibit was held in Pueblo the following evening.

Those Who Back Themselves

From San Francisco's Commercial Paper Corporation's house organ, "Paper," is gleaned the following bit of wisdom:

"Another way in which humans are assorted is in the two divisions of those who back themselves and those who go back on themselves."

IF I WERE A PAPER SALESMAN—

I would go to the newspaper publishers in my territory, be they large city dailies or small country weeklies, and sell them the idea of printing a few copies of each issue upon a first class durable paper that would stand the ravages of time. We all know that a sheet of newsprint with its 75 per cent or so of groundwood deteriorates rapidly. Such a sheet has no place in a file where permanence is desired. The New York Times, I understand, prints a large number of copies of each issue upon a pure rag paper, these special copies being for their own permanent files, for distribution to libraries and other places where durability is the chief requisite. I see no reason why the idea should not be extended to all newspapers.—T. E. L.

Galloway Gleefully Glorifies Gridiron

Bruce F. Galloway, a son of Alex B. Galloway, sales manager for the Oregon Pulp & Paper Co., is now located in the company's San Francisco office in the Russ building. Young Bruce has spent a great deal of time this fall praising and alibi-ing the Oregon State College foot ball team, he having graduated from that university. "Next year," says Bruce, "will be our year. This year our freshman team was so good that nobody wanted to play us."

Returns From Eastern Trip

Andrew Christ, Jr., manager of the Western Waxed Paper Co., Oakland, has returned from a trip to Chicago, New York, and other cites beyond the Rocky Mountains. Mr. Christ attended the Chicago convention of the American Bakers' Association at Chicago and declared it one of the most interesting meetings he ever attended.

Set-up
Folding
Corrugated
Solid Fibre

BOARDS and BOXES

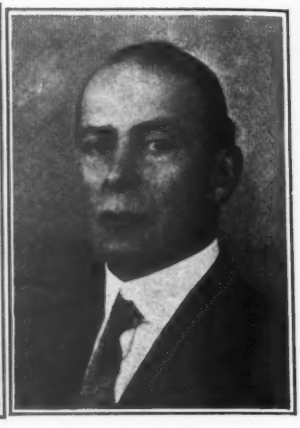
A department for interests allied with the pulp and paper industry

Board Mills and Paper Converters

WM. J. WARREN
President

LOUIS E. RAISIN
Vice-President

RAOUL J. GRUENBERG
Director



LOUIS A. THIEBAUT
Secretary

Box Crafters To Meet In Victoria

The sixteenth annual convention of the Pacific Coast Paper Box Manufacturers Association will be held at Victoria, B. C., June 23, 24 and 25, according to an announcement made this month by Rufus Holman, Portland Paper Box Co., Portland, vice-president. Committees, which for the most part will be selected from Portland, Seattle and Vancouver, B. C., members, will be named shortly. Convention headquarters have not been decided on.

On recommendation of Hugh Peat, general secretary, Mr. Holman will probably appoint A. J. Schoephoester of the Union Box Co., Seattle, to be chairman of the golf committee. Serving with him will be Felix Dielschneider, of the Oregon Paper Box Factory, and Walter Simpson, of the Simpson Paper Box Co., both of Portland.

Mr. Holman returned recently from Vancouver, B. C., and Seattle, where he conferred with members regarding tentative plans for the 1930 convention.

Fingers of Steel

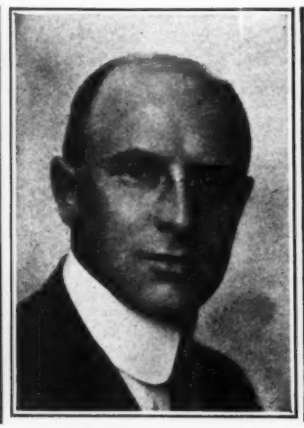
To let the world know what can be done about attractive packaging, particularly as it can be done by the merged factories now operating under the name of the Consolidated Paper Box Co., that company has issued an attractive folder entitled "Fingers of Steel."

Handsomely printed and excellently illustrated the folder portrays for the reader the historical background leading up to the present merger. It relates how the old and clumsy way of hand wrapping has given 'way to the modern attractively packaged units, the silent salesmen which are produced by "fingers of steel" in the paper box plants.

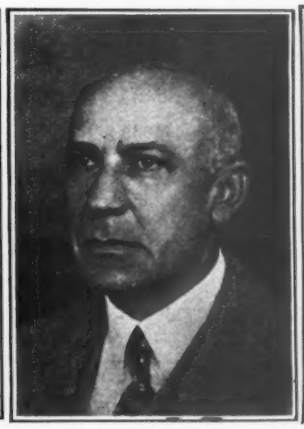
The folder traces the Consolidated from the first paper box factory in San Francisco, a dingy place started by a Frenchman—Antoine—who a decade later sold out to the elder Thiebaut, father of the present L. A. Thiebaut, now secretary of the Consolidated.

Shown on this page are the officers and directors of the Consolidated Paper Box Co. of today.

EDGAR L. STERN
Vice-Pres. and Gen. Mgr.



C. J. BASTEDO
Vice-President



J. B. GILMAN
Director

JULIAN L. HAMMERSLAG
Treasurer

What to Do With the Hemlock?

(Continued from page 32)

A paper by President Ossian Anderson of the Puget Sound Pulp & Timber Co. was perhaps the high light of the pulp session. It is reproduced in full elsewhere in this issue.

"Future of Pulp on the Pacific Coast" by Director C. P. Winslow of the Forest Products Laboratory at Madison, Wis., was a discussion on the economic phase. Summarizing, Mr. Winslow said, that distance from consuming markets placed a freight differential handicap on the Pacific Coast industry that had to be offset by cheaper wood, that present and future markets for pulp and paper would require large amounts of wood, that the quantity of wood on the Pacific Coast is ample, that forest regrowth factor would play an important part in the future of the industry in different regions, and that data on pulping qualities of Pacific Coast woods was as yet incomplete.

The Logging Congress recognizes this need for further study on the suitability of Pacific Coast woods for pulp and in consequence adopted the following resolution:

Pulp Studies

WHEREAS, the economical pulping of western woods is seriously handicapped by lack of accurate knowledge of means of solving certain chemical problems involved, and

WHEREAS, the lack of this information virtually eliminates the possibility of utilizing low grade logs and waste, thereby causing serious economic loss to the states and federal governments and timber owners of the various sections, and

WHEREAS, the Forest Products Laboratory is well equipped to conduct such investigations, therefore

BE IT RESOLVED, that the president of the Pacific Logging Congress appoint a committee consisting of one member of the executive committee from each state to present and urge upon their congressional delegations the need for sufficient appropriation to enable the Forest Products Laboratory to properly conduct studies in the utilization of western wood waste for pulp purposes.

The resolution raises two points.

First—Have the Pacific Coast wood-using industries definitely correlated their problems of research so that they can present an intelligent program and say, "Here, we want to know about these specific things?"

Second—In view of the important factor which the Pacific Coast forest industries constitute in national life are these industries not entitled to and will they not b e s t be served by a forest products laboratory located on the Pacific Coast?

Begin Big Power Project

After five years of preliminary work, largely engineering and foundation surveys, the Northwestern Electric Co. of Portland is starting active work on its 54,000 kilowatt Lewis river hydro-electric project, in Cowlitz county, Washington. It has been estimated that close to $200,000 has been spent in the preliminary work.

The first plant will be at Ariel, 15 miles up the Lewis river from Woodland. The Lewis river will be impounded in a lake 15 miles long. Virgin growth Douglas firs, which now tower 200 and more feet from the floor of the valley, will be entirely under water.

Northwestern engineers have worked out an agreement with Cowlitz county commissioners to use the Lewis river road to haul in their materials, and are engaged now in strengthening the bridges.

Ten miles of the present county road, which will eventually be flooded, will be relocated hundreds of feet higher up on the north side of the steep rising Shirttail canyon, the local name for the river gorge. The Northwestern company will pay $115,000 toward this relocation.

About 500 men will be employed this winter, largely in foundation excavation work, and building a diversion tunnel for the river waters on the Clarke county side. By next summer 2,000 men may be employed in construction. Building of the plant is expected to require at least two years.

Just where all of this 54,000 kilowatts of new power will be used is the unknown quantity "X." The Northwestern company serves cities in the Willamette valley and north to Kalama on the Washington side, and to Rainier on the Oregon side of the lower Columbia river valley, besides getting a share of the business of Portland.

There have been persistent rumors of a large industrial operation, the rumors including pulp and paper very strongly, to be located in the vicinity of Kalama, on the Columbia river. Unknown "big Eastern interests" are reported to have leased Kalama industrial property.

There is nothing definite on that—but it is definite and positive that a large scale development of the power potentiality of the Lewis river, involving millions of dollars, is under way—and everyone is happy over it in the southwestern part of the state.

Umpqua May Start Construction in Spring

Although some reports have been current that Umpqua Pulp & Paper Co. had started construction on a proposed 100-ton unbleached sulphite pulp mill at Gardiner, Ore., near the mouth of the Umpqua river, a last-minute checkup brought forth from the principal promoter of this project, W. L. Nederhoed, the declaration that construction will be started early next year. Work that has been done so far has been only in the nature of foundation tests, etc.

Mr. Nederhoed said he was leaving shortly for Japan, where he says he has spent some 15 years previously, but he would not discuss the nature of the business to be transacted on the present trip.

Although statements had been made heretofore that the Umpqua project was fully financed, the company nevertheless offered last month the unsold portion of 25,000 shares of 8 per cent cumulative preferred stock, par value $100 per share, a total offer of $1,000,000.

Joe Kaster, who has been associated with a number of Pacific Coast mills for the past quarter century, is president of the Umpqua company. Mr. Nederhoed is vice-president and sales manager, R. E. Loomis, banker, is secretary and treasurer. In addition to these three, Percy A. Cupper, hydraulic engineer, and W. Lair Thompson, attorney, are listed on the board of directors.

Offices of the company are at 1103 Bedell building, Portland.

Heifner Gets Another Extension

Senator Charles G. Heifner of Seattle has been granted an extension of his lease of Poplar Island by the New Westminster, B. C., council. Senator Heifner is endeavoring to raise capital for establishment of a pulp mill there.

Camas Mill Improvements

(Continued from page 31)

11. It will, however, be provided with a new motor-driven shake, wire rolls, additional table rolls and a new breast roll with spring supports. The shake rails will be of steel designed for strength with lightness, supported on heavy cast iron posts and springs. All shaking parts will be mounted on flexible supports to avoid wearing surfaces.

This improvement includes suction couch and first press rolls, the machine not previously having been so equipped. Between them will be a ball bearing mounted aluminum roll for regulating the draw of the paper, which will be blown from the couch to the press felt. The old bottom gun metal cased couch roll will be used as a bottom smoothing roll between the third press and the first dryer, and the rubber covered roll formerly the first press bottom will serve as the top smoothing roll in the new location, arranged in such manner that a marking roll may be added later if required. The present second and third presses will be used unchanged but relocated.

Six new dryers will be added to this machine. The present calendar, reel and winder will be retained, the latter fitted with a new slitting arrangement with 18 saws and collapsible shafts. The present line shaft, lengthened to suit the machine changes, will be retained but provided with new pulleys for higher speeds. The present steam engine driving this machine will be retained, and its performance eased by the fact that the wet end journals of the breast roll, new table rolls, wire, couch and first press rolls will be mounted in new roller bearings instead of ordinary journal boxes.

Each variable speed section of the machine, consisting separately of the couch, first, second and third presses, smoothing press, two sections of 17 dryers each, calendar and reel will be driven by new improved cut steel spiral bevel gears, fully enclosed and running in oil.

Present machines Nos. 7, 8 and 9 will remain undisturbed.

New Yankee Machine

Machine No. 10 is being provided to fulfill the demand for a variety of machine glazed, plate marked and felt striped specialties of medium to light weight bleached and unbleached sulphite and kraft papers. The fourdrinier wire will be 132 inches wide and 65 feet long. From the breast roll to the couch, exclusive of the latter, the fourdrinier part is removable into the tending aisle as a unit to facilitate wire changes. It is adjustable vertically so that the breast roll may be raised two inches above or lowered six inches below the level of the wire guide roll. The double slice is of improved, papered design.

A new No. 11 machine will be installed to produce 25 tons of 10-pound toilet tissue paper daily is built for a fourdrinier wire 175 inches wide and 75 feet long; except that it is provided with creping mechanism its materials of construction are the same and the dimensions of its parts proportional to new Machine No. 3, described above.

Paper Machine Buildings

No structural alterations are necessary to the rebuilding of machines Nos. 1 and 2. The installation of new No. 3 Machine necessitates the removal of the creping machine which occupied space in the same bay as the old No. 3 machine. The consequent structural alterations of this building in which the present machine No. 9 also is located consist of the machine No. 3 foundations, white water and couch stock chests, felt tightener pit in the basement and a portion of new concrete main floor.

The rebuilding of machine No. 5 requires new foundations, couch pits, etc., for the wet ends, new screen and filter foundations. Rebuilt No. 6 machine requires additional structural columns, couch pit, new machine girders and calendar foundations.

New No. 10 machine requires the roofing cover of the court area between the buildings in which machines Nos. 1 and 2 are located on the south, and Nos. 9 and 3 on the north. This space is to be filled with concrete foundations for machine No. 10 and auxiliaries with a steel and concrete superstructure and the open end closed by a new concrete outside wall with large windows.

New buildings of reinforced concrete are being erected to house the new machine No. 11 (in such manner as easily to be widened to provide space for future No. 12 machine), and west of the Kraft Beater Room to provide space for locating eight additional beaters.

Paper Machine Auxiliaries

The new beaters are for beating kraft stock exclusively for paper machines Nos. 4, 6 and 10. They are driven in pairs by motors located on the main floor, beneath which the chests for beater stock and white water will be located. The balance of the new beater room basement floor space will be occupied by machine shop equipment.

The kraft beaters are of 2,000 pounds capacity and have stone bed plates and corrugated steel fly bars. Two beaters of the same type are provided for the new Yankee machine No. 10, and two each of the same general type but with stainless steel fly bars are provided for new machines Nos. 3 and 11.

One new Jordan coupled to a 350 h.p. synchronous 2,300-volt motor is provided for each of the new machines Nos. 3, 10 and 11. The ones for mcahines Nos. 3 and 10 are steel filled with special duplex plugs. The No. 11 Jordan is brass filled with plain bars.

Stock will be pumped through Warners equalizers to assure even consistency before passing to paper machines. The equalizbers wlil discharge stock directly into the Jordans below, before it passese to the screens.

Two Bird screens with copper vats will be installed on each new paper machine. These will be driven by direct connected motors through worm reduction units, one motor driving both screens. Rejects of these screens will pass to four plate flat screens. These four plate screens are at present installed on machines Nos. 4, 5 and 6. The four plate screens on the present machines will be replaced by new eight plate flat screens. Stock will be piped directly to each screen so as to reduce foaming to a minimum.

Each machine, both new and old, will be equipped with condenstae removal and moisture control systems. The Yankee machine will be provided with a vapor absorption system.

Toilet Paper and Towel Converting Facilities

A converting plant 200 feet wide by 250 feet long will be constructed for the converting of toilet paper and towels, in which will be installed towel machines and toilet paper machines. Tracks will be constructed adjoining the plant for rail shipment of products and the mill tramway system will be extended so that the

(Turn to page 50)

New Types
New Models
New Machines

EQUIPMENT

Manufacturers of, and dealers in, equipment used by pulp and paper mills, board manufacturers, converting plants, paper merchants, or any other branch of the industry may make their announcements in this department.

New Dealers
New Branches
Appointments

Will Plate Evaporator Tubes With Chromium

The United Chromium Corp. has shipped a sample lot of evaporator tubes East for the Longview Fibre Co., Longview, to make a series of experimental chromium platings. Some of the tubes are to be plated on the outside, others on the inside. The plated tubes will then be re-installed at the Longview mill and studies will be made of results. Chromium has exceptional qualities for resisting wear and corrosion.

Mr. L. A. Davies of the San Francisco office of the United Chromium Corp., made a visit to Northern parts of the Coast territory in early October, during the course of which he appointed Mr. Charles A. Newhall, Smith Tower, Seattle, a representative of the company to handle chromium plating business in the pulp and paper industry in Pacific Coast territory.

Roll Winders Under Scrutiny

Production on modern high speed presses can be no greater than speeds at which the rolls of paper used thereon can be successfully unwound without breaks. The lack of "kick-proof" rolls is the greatest single cause of grief and delay in the pressroom.

Aside from physical qualities of roundness, firm ends, even density and smoothness an extra asset of the really good roll wound compactly from core to outer periphery, is that it contains up to 15 per cent more paper, necessitating less storage space and fewer roll changes.

A poor roll often makes quite as much or more trouble than poor paper and in the average case the user of the paper would be better served by good rolls of reasonably good paper than by poor rolls of really good paper.

Demands for higher speeds and qualities have focused attention on improvements in roll winding and slitting.

A bow spreader is needed with old two-drum winders to separate web sections before they reach drums to avoid interweaving. Such practice tends to stretch the sheet, requires delicate manipulation and the roll forms around the core with no attempt at even density.

One manufacturer employs a score cut, and passes the paper over the front drum surface and both drums operate at a fixed constant speed with respect to each other. Variation is not required.

Density of the roll is controlled by application of pressure on the riding roll which is driven in time with the surface speed of the drums. Thus compactness is obtained by pressure rather than by pull on the web. Pressure of riding roll automatically decreases as roll builds up.

*Abstract of an article presented by the Cameron Machine Co. at the fall meeting of TAPPI at Richmond, Va., Sept. 24-25-26.

G. E. Builds Most Modern Turbine Generator

In Ford's River Rogue plant General Electric Co. will install the world's most modern turbine generator. The complete technical rating is 110,000 K. W., 90% power factor, 13,800 volts, 1800 r.p.m., 3 phase, 60 cycles, with steam conditions of 1200 pounds guage pressure; 725 degrees F. total temperature; reheat to 550 degrees F. and one inch vacuum.

The installation will have two elements, the high pressure section mounted directly on top of the low pressure element, each division delivering one-half of the total K. W. output.

The Pehrson Dryer

The new Pehrson system of drying pulp, bark and chips is explained in a folder issued by the Technical Economist Corporation. In operation the hot gases are introduced over that portion of the periphery of a rotating drum which is immediately beneath the material composing the bed and the rising gases pass through the bed, completely surrounding every particle of it. Through this system, it is claimed, an intimate contact is maintained between the drying gases and the materials to be dried, ensuring a high thermal efficiency. The Pehrson dryer operates on the continuous principle.

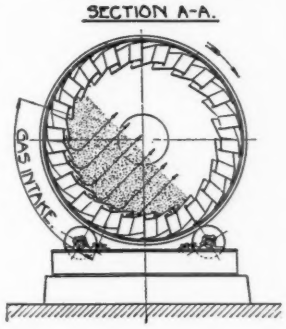


Diagram illustrating operating principle of the PEHRSON DRYER

Fir-Tex Will Install Biggs Rotaries

The Biggs Boiler Works Co., Akron, Ohio, have recently received contract from the Fir-Tex Insulating Board Co. for six Biggs 18-foot diameter rotary digesters to be delivered and erected at the Fir-Tex plant, now under construction at St. Helens, Ore. Work on the fabricating of the rotaries is being rushed in the Biggs plant.

Heat Transfer

The seventh article of a series on "Heat Transfer and Crystallization" prepared by Professor W. L. Badger of the University of Michigan for the Swenson Evaporator Co. is now being distributed. This installment deals with the principles of forced circulation evaporation.

The Cameron Machine Co. is offering an interesting booklet, profusely illustrated, showing Cameron winding installations in the United States and Canada. Several Pacific Coast installations are shown. Ask for Form no. IF 1929.

Camas Mill Improvements

(Continued from page 48)

converted products may be transferred to boats for water shipment, or so that bags, counter rolls and other products may be carried from the several parts of the paper mill to the converting plant for mixed shipments as required.

Paper will be conveyed by electric trucks from the paper machines to the plant, and a covered runway, including a tunnel under the railroad tracks, will be constructed for this purpose.

The latest ideas in portable conveyors have been adopted in the converting room and warehouse. These conveyors are to be arranged so that there will be a quantity of empty cartons adjacent to each machine, which will be accessible to the operators. The cartons will be placed on small roller loading platforms near each machine and when packed can be easily transferred to the main gravity conveyor.

All cartons gravitate to a central scale and will then pass to the storage room adjoining the converting room or to railway or tramway cars as desired. The system also allows part of the products to go into storage and part to cars, or to load cars with cartons both from storage and from converting machines if desired. Practically any combination of handling methods desired can be obtained.

The building will have concrete floor and walls and wood roof, one story in height except along the railroad track, where a core machine for producing the paper cores for the roll toilet machines will be installed on a second floor which will be constructed for this length of the building alongside the railway tracks. Cores will be conveyed to each roll toilet machine. The office and locker rooms will also be located on this second floor.

Water Supply and Water Power

During half of the year all water is received by gravity flow from La Camas Lake nearby, which is fed by mountain streams. Two water wheels connected to wood pulp grinders are driven from this source. During natural low lake water periods Columbia River water is pumped up to the forebay which flows from the lake. Three of the four inducing motor-driven pumps, each of 5,500 gallons per minute capacity, used for this service are being retained, supplemented by a new 15,000 g.p.m. pump similarly driven.

Four existing pressure filters are being repiped and augmented by 16 new ones, each 8 feet in diameter and 25 feet long. Pretreatment and sedimentation facilities are provided, through which passes all of the water from lake and river, and from which that not requiring filtration is diverted for mill uses. Lake water for the wheel penstocks is delivered before reaching the sedimentation basins, which with the filters are located up a hillside 1,000 feet from the mill. About 40 million gallons will pass through the sedimentation system, of which about 16 million gallons are filtered daily. About 1,800 h.p. is developed from the lake during the six months yearly from surplus flows above the requirements of the paper and pulp mills and steam power plant.

Steam and Electric Power

Such steam engine drives as exist, developing a total of about 2,300 h.p. will be retained, but no more added. Present steam electric power is rudimentary, consisting only of a 750-kilowatt condensing turbo-generator operated normally to generate alternating current for driving the river bank pump motors during the season of low outflow from the lake. The bulk of the load is carried by purchased hydro-electric energy from the Northwestern Electric Company.

A new steam-electric power plant is being provided to supply the increased demands of the enlarged mill for steam and electric energy. This plant is in a sense superimposed on the present boiler plant as regards steam pressure and is a forerunner of an ultimate high-pressure installation. The latter will be superimposed on the steam cycle of the plant now under construction and at a pressure commensurate with the heat-energy ration required by increased demands for steam and energy in the future expansion of the property.

Prime movers will consist of two double automatic extraction turbo-generators designed to bleed steam at process pressures and exhaust to vacuum. During normal operation these machines will pass the major portion of their full throttle flow to process via automatically operated extraction valves, a small amount passing through the low pressure end of the cylinder to carry fluctuations in the electric load to ventilate the vacuum stages of the turbine.

V. D. Simons of Chicago is the engineer and construction manager of this development, and H. A. Simons is his resident engineer at Camas.

Colorado Paper Mill Changes Hands

The Colorado Pulp & Paper Co., center of extensive litigation over the past few years, on October 24 was purchased by the Colorado Paper Products Co., a corporation formed expressly to make the transaction. The incorporators are M. Binstock, Max Bronstine and .J E. Robinson. Officers are M. Binstock, president; Max Bronstine, vice president; J. P. Karsh, treasurer, and Joseph Pepper, secretary.

The sale brings to a close a series of court battles ensuing since 1926, when stockholders formed into two hostile camps and the wrangling so hampered management and created such a lack of confidence on the part of the buying public that it was necessary to appoint a receiver in the autumn of 1927.

The receiver in turn encountered difficulties said to be due to the inability of interested parties to work together.

Several times the mill came up for receiver's sale, always lacking a bidder until finally at the July sale this year, Max Bronstine, I. Rude and Joseph Buchhalter gained possession on a bid of $228,000, over a hundred thousand less than the upset price formerly set by the court. The sale, however, was confirmed by the court and the receivership terminated.

Shortly afterward differences arose among the purchasers and the recent sale is taken to indicate that the mill has finally come into the hands of men who can agree on policy and who will work wholeheartedly toward promoting the business of the company. It is said the mill was operated at a profit by the receiver in spite of all the obstacles placed in his way and it is expected to prove profitable under the business administration of the three recent purchasers.

Wedding Bells!

James R. Berry, of the Grays Harbor Pulp & Paper Co. of Hoquiam, and Miss Leona C. Borges, daughter of Mrs. and Mrs. J. J. Borges of Erie, Pennsylvania, were married in Aberdeen October 20.

EDITORIAL

Off Go The Whiskers!

THE salesman, at long last, is in grave danger of losing his traditional role of Santa Claus—and there is none to mourn his passing.

In the old days clients, purchasing agents and prospects were favored annually with gifts whose aggregate value mounted into real money. Many of them still are, and the salesman, undaunted, is ready to carry on as long as his firm foots the bill.

But some astute buyer, during an odd moment or two, arrived at the surprising conclusion that it wasn't the old Yuletide spirit that promoted these offerings. More, he expressed the ungrateful opinion that, if his status as buyer were to cease, there might be a notable shrinkage in the volume of Christmas gifts.

Evidencing the spread of this heresy comes a letter to our desk originating with the purchasing agent of the Cadillac Motor Co.

It is worth quoting here, at least in part:

"Your name appears on our record of vendors with whom we have enjoyed business relations during the past twelve months.

"As such we feel that you would want to know that we support the discernible trend toward the elimination of the hardship worked on innumerable companies by the time-honored custom of remembering customers at Christmas time.

"Our thoughts in this regard are that we appreciate our vendors having taken care of the business given them, and they have only to continue to do just that, to merit our good will."

And that's that. A very expensive and vicious old custom undoubtedly is passing. And salesmen whose contracts with their clients have been on the basis of real worth and service will find themselves little the poorer for the experience.

* * *

Woodpulp Papers For Permanent Uses

Just what qualities a paper must have to be acceptable for uses where permanence is eminently desirable has for some time been a bone of contention between manufacturers of rag content papers and manufacturers of high grade woodpulp papers.

The Bureau of Standards of the U. S. Department of Commerce has thrown some light on the subject in Research Paper No. 107, entitled "A Study of Purified Wood Fibers as a Paper-Making Material." An abstract of this paper states:

"The characteristics of purified wood fibers and commercial papers prepared from these fibers are being investigated from the standpoint of chemical purity, color, durability, and permanence and compared with other typical papers and paper-making fibers.

"The interest in the purified wood fibers lies not only in their value for high-quality bond and writing papers of the grade hitherto made entirely from rag fibers or mixtures of rag and sulphite fibers but also very largely in their permanence qualities and thus the possibility of using them to supplant the higher-priced rag fibers in permanent record or other papers in which durability must be maintained over centuries.

"Tests have been made on typical commercial grades of paper-making fibers, such as soda pulps, sulphite pulps, purified wood pulps, and rag half stocks. A thorough study was made of the physical properties of commercial papers made from fibers similar to the above. The effect of accelerated aging tests on the chemical and physical properties of these papers and paper-making fibers was determined in order to obtain information on the relative permanence of these materials.

"The more important conclusions of this investigation follow. Accurate evaluations of the quality of papers or paper making fibers must be based on specified performance tests. Fiber composition can not be taken as a criterion of the excellence of a paper. The manner in which the purified wood fibers and paper prepared from them react to the various tests for durability, permanence, color characteristics, etc., indicates that they are well adapted for conversion into high-quality bond and permanent record papers, which have hitherto been made exclusively from furnishes of high-grade rag half stock."

ELSEWHERE

Will Build New Swedish Insulating Board Mill

Swedish manufacturers are looking into the idea of converting their sawmill wastes into insulating board similar in character to Insulite, Nuwood and other products well known on this continent.

It is reported that the Mo & Domsjo Works will soon begin construction on a new plant for this product at Horneborg, near Ornskoldsvik, close to the Domsjo sawmill. The plant will have a daily capacity of 50 tons, or 150,000 sq. ft., and is expected to be in production within a year.

A new company will be organized in conjunction with the Finansaktiebolaget in Stockholm.

Heretofore only the Masonite factory at Rundvik has been producing an insulating board in Sweden.

* * *

New Kexholm Sulphite Plant, Largest in Finland

The chemical pulp plant now being erected in Kexholm by German-British interests will be the largest in Finland, according to a recent report from Trade Commissioner William T. Daugherty, Berlin. The plant will eventually be raised to 120,000 tons. The plant is (metric ton=2,205 pounds) of pulp annually, which will eventually be raised to 120,00 tons. The plant is expected to be finished and ready for operation early in 1931, employing 800 workmen. The new mill will get its pulpwood from Russia chiefly, and is planning to dispose of its entire output in Germany, England, and Italy. The power will be supplied by the company's own plant.

* * *

Quebec Pulp & Paper Corp., owned jointly by Price Bros. and Port Alfred Pulp & Paper Co., will dismantle 125-ton Van Jalbert groundwood mill, idle several years.

* * *

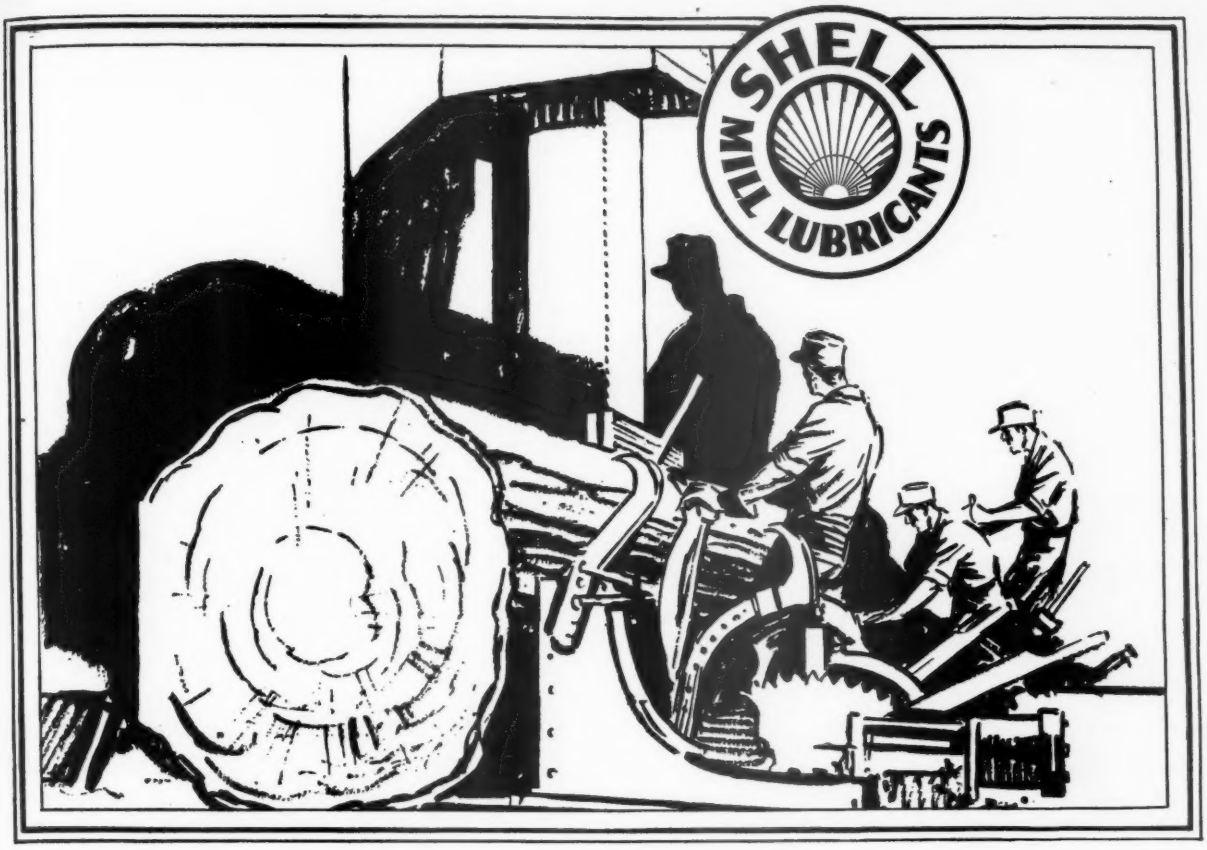
A new 1,200 foot per minute tissue machine replaces two older machines at Northern Paper Mills, Appleton, Wis.

* * *

Canada Power & Paper Corp has absorbed Port Alfred Pulp & Paper Corp. and Wayagamack Pulp & Paper Co. Capital will be enlarged.

* * *

Price Bros. will have their Donnacona (Canada) 55-ton wallboard mill in production by January 1.



SCREAMING SAWS

....*that sing a lullaby to superintendents*

LET the band-saw's high pitched whine miss a midnight beat, and the mill superintendent stirs restlessly. Let it die off sullenly and the "boss" is on his way to the mill.

Trouble! A shut down is costly; even a few minutes delay is serious.

Not every time, but too many times, faulty lubrication is to blame. And lack of oil is less often the cause than the *wrong* lubricant.

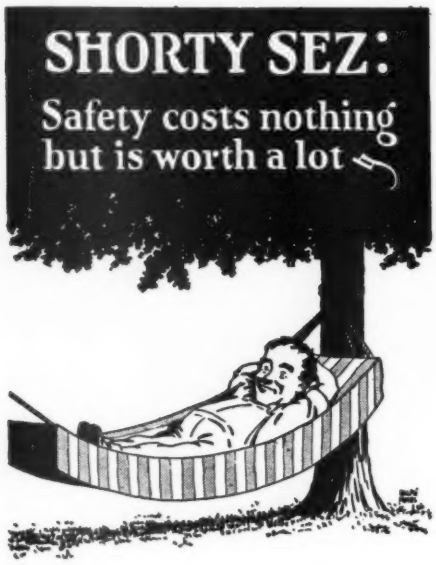
About *lack of oil* the Shell man can't help you. But his wide and thorough understanding of lubrication makes him a valuable authority on the *kind of oil* needed in every remote gear or bearing. His services are free; they do not obligate you in any way.

Call him in *before* you need him —he can help to keep the saws singing. The great majority of mill owners evidently value his advice, for they continually use the Shell products he specifies.

SHELL MILL LUBRICANTS

S·A·F·E·T·Y FIRST—LAST and ALWAYS

The Best Safety Device Known Is a Careful Man



Safety Is Just Plain Good Business

ONE trouble with this business of safety is that methods of computing losses are not made with the proper yardstick. It's very easy to fall into the error of merely charging off those direct and visible expenses, such as assessments for industrial insurance and hospital fees and regard these as the total.

As a matter of fact these items can practically be disregarded as far as the total cost of accidents to the industrial organization is concerned. One man who has spent a number of years in safety work in the wood-using industries of the Pacific Coast is authority for the statement that the cost of accidents is at least four times the visible direct costs mentioned above.

And he can make a forceful argument to prove his contention. Here is an example from a woods operation.

A logger was fatally injured on a side-hill operation out near the end of the railroad spur. His two companion workmen of course immediately suspended work, bound him up as best they could with first aid, carried him down to the railroad. The engine was called up and the road was cleared for some 30 miles down to the landing while the injured man was speeded toward the city and expert medical attention.

The company's launch was called but the man died as he was being loaded into the launch. The whistles blew, announcing a death, and according to custom work ceased for the day.

Consider the stoppage of work as everything was set aside to rush the injured man to the hospital. Consider the time lost when the camp shut down for the day. Consider the moral effect on the men when their attention was turned from immediate interest in their work to many and many a discussion of the accident, of the deceased and his characteristics, of the bunkhouse post mortems. Admittedly this particular accident cost far above the average of four times the cost of insurance and hospitalization fees.

This speaker emphasized a new point of view that is being taken with regard to accidents. Study of accidents has shown that about 15 per cent can be avoided by proper safeguards, but the big 85 per cent boil down to human thoughtlessness. This is the new idea that is being shoved into the spotlight by safety engineers. About 98 per cent of accidents "just happen", and to make any improvement here means just an everlasting hammering at it to make the men, the human element, have a thought for safety.

And don't wait for an accident and then have a meeting. Look into these "near accidents". If Harry "nearly got his" today, he upset the smooth routine of the day and entered a loss on the books. There should be no occasion for the "nearly happened".

There are many points about a mill or woods operation that can be covered with safeguards, but no one has yet devised a means for putting guards on the minds of men. They must be kept alive to the idea of safety. Sometimes there has to be a heated verbal kick in the trousers, but safety pays. You bet it pays. But overnight results should not be looked for. Get it known that the institution simply will not stand for accidents and never let down on that idea.

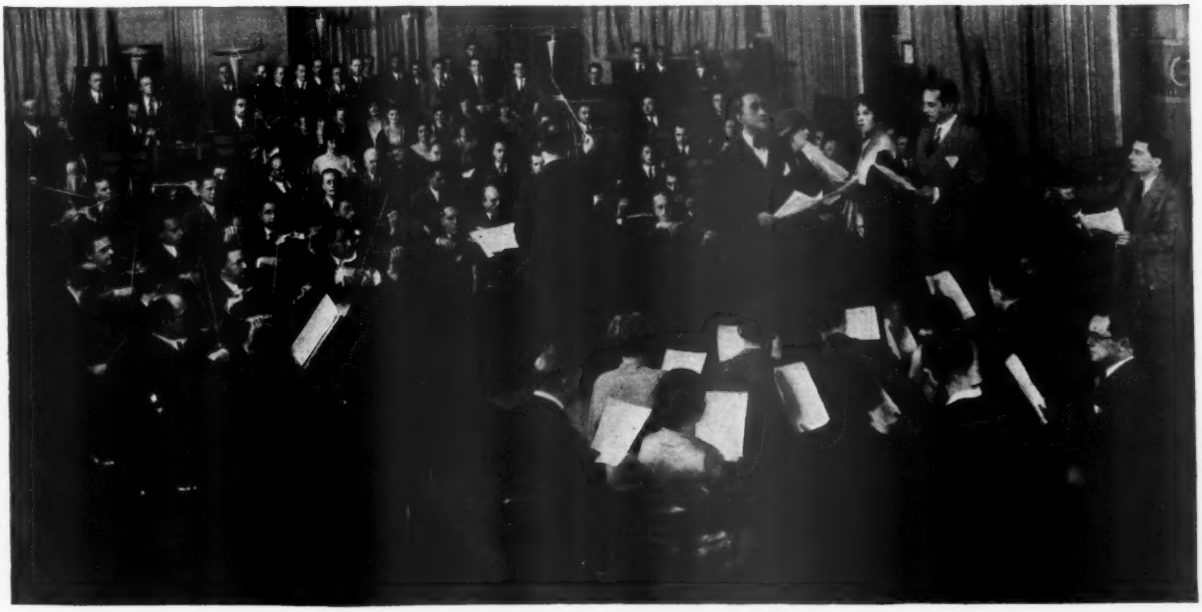
STATEMENT OF ACCIDENT EXPERIENCE—SEPTEMBER, 1929

COMPANY—	Hours Worked	Total Accidents	Frequency Rate	Days Lost	Severity Rate	Standing
Inland Empire Paper Co.	67,942	0	0	0	0	1
Puget Sound Pulp & Timber Co., Fidalgo Division	24,192	0	0	0	0	2
Everett Pulp & Paper Co.	76,296	1	13.1	21	.275	3
Grays Harbor Pulp & Paper Co.	93,430	2	21.4	627	6.71	4
Crown Willamette Paper Co., Camas	279,158	6	21.5	132	.473	5
Puget Sound Pulp & Timber Co., San Juan Division	29,412	1	34.0	4	.136	6
Rainier Pulp & Paper Co.	63,622	3	47.2	29	.456	7
Tumwater Paper Mills	19,224	1	52.0	9	.465	8
Cascade Paper Company	52,672	3	56.96	35	.665	9
Pacific Straw Paper & Board Co.	16,072	1	62.2	13	.809	10
Washington Pulp & Paper Corp.	95,719	6	62.7	4,529	47.316	11
Longview Fibre Company	82,434	7	84.9	54	.655	12
National Paper Products Company	72,250	7	96.9	96	1.329	13
Fibreboard Products Inc., Port Angeles	46,832	7	149.5	98	2.093	14

Following Mills Not Reporting—Columbia River Paper Co., Pacific Coast Paper Mills.

TUNE IN
THE ROMANCE OF PAPER
WEDNESDAY NOVEMBER 20TH

Westinghouse invites you to tune in . . . 7:30 p. m., Eastern Standard Time for the third of a series of new and distinctive radio programs . . . a "Westinghouse Salute" to the paper industry, November 20. An orchestra of 50 pieces, a wordless chorus of 40 voices, full cast of actor-stars from the legitimate stage . . . through a coast-to-coast NBC network including stations KDKA, WBZ, WBZA and KYW.



The Studio Cast of a "Westinghouse Salute"

Westinghouse

SALUTES THE PAPER INDUSTRY

When writing WESTINGHOUSE ELECTRIC & MFG. CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY

May Attend National TAPPI Meeting

Completion of the organization of the Pacific Coast Section of the Technical Association of the Pulp and Paper Industry and formal affiliation with the national organization, are seen as the next steps for TAPPI on the coast, by R. S. Wertheimer, coast chairman, who is resident manager of the Longview Fibre Co at Longview, Wash. He was elected at Tacoma October 5.

The committees, on such items as program, by-laws, membership and subject studies, he expects to appoint before the first of December. These are some of the details to be worked out before any real progress can be made toward technical studies for the good of the industry on the west coast.

Chairman Wertheimer indicated that he and members of the executive committee of the west coast section would probably attend the next meeting of the national organization in New York in February, when formal affiliation would be effected. No date has been set for the next meeting of the coast section, which may be held in Longview.

The new chairman anticipates that members should derive benefit through mutually helpful contacts and exchanges of ideas on technical matters.

Alaska Surveys Completed

Don Meldrum, who has had charge of the timber surveys in Alaska for the two pulp timber concessions held by the Zellerbach interests and George T. Cameron, publisher of the San Francisco Chronicle, returned to Seattle late in October after completing another season of timber reconnaissance in the Ketchikan and Juneau districts.

Field figures have now to be tabulated and a report made and this may take several weeks before any decision can be made, Mr. Meldrum intimated. He will go to San Francisco later to present his reports to executives there.

The season just closed was one of unusual interest for the survey parties. The navy department had several planes in Alaska working in conjunction with the U. S. Geological Survey and with this modern aid the government was able to map accurately a large area in the mountainous coastal belt of the Alaska panhandle. Mr. Meldrum flew in the navy planes over much of the territory he at other times had made intimate acquaintance with through the medium of foot and river travel.

Another thing that contributed to elimination of monotony of the field work was the considerable population of brown bears that frequently introduced themselves as uninvited guests at the camps. The bears were the result of one tragedy, Jack Thayer being mauled to death by a big brown bruin when he was checking over some equipment for the survey party.

Crown Zellerbach Operating Conference

Led by J. D. Zellerbach, executive vice-president of the Crown Zellerbach Corporation, nearly 20 operating managers of Crown Zellerbach mills on the Pacific Coast held their own first convention in Port Angeles on October 22 and 23. The meetings were held in the Washington Pulp & Paper Corporation's offices at Port Angeles, Wash.

Mill operating ideas were interchanged by the executives and a pleasant association was enjoyed. No time or place for the next meeting were set, the managers being subject to call when another conclave is desired.

In attendance were J. D. Zellerbach and A. B. Martin, San Francisco, executive vice-presidents of Crown Zellerbach; A. Bankus, San Francisco; G. F. Berkey, vice-president, and D. S. Denman, logging superintendent, Portland; J. E. Hanny, mill manager, West Linn, Oregon; A. B. Lowenstein, resident manager, National Paper Products Co., Port Townsend; F. N. Youngman, vice-president, Pacific Mills, Ltd., Vancouver, B. C.; N. M. Brisbois, general operating managers, Fibreboard Products, Inc., Stockton; A. W. Olson, mill manager, Lebanon, Oregon; W. L. Raymond, assistant to the president, San Francisco; L. M. Smith, operating manager, Camas; D. G. Stenstrom, resident manager, Pacific Mills, Ltd., Ocean Falls, B. C.; H. A. Swafford, mill manager, Floriston, Calif.; Roy A. Young, resident manager, Camas; Norman B. Gibbs, resident manager, Washington Pulp & Paper Corp., Port Angeles; W. S. Lucey, general manager, Grays Harbor Pulp & Paper Co., Hoquiam, and D. B. Davies, resident manager, Rainier Pulp & Paper Co., Shelton, Wash.

Killam Will Investigate Pulp Tariff

During his present visit in Japan, Lawrence W. Killam, president of the B. C. Pulp & Paper Co., will look into the tariff and other questions affecting the market for pulp in the Far East.

According to word received by British Columbia pulp exporters, an inquiry is now in progress in Japan for the purpose of determining whether the present tariff schedule on pulp should be revised.

A price war has been waged for some time in Japan, the mill operators there claiming that they are entitled to an increased measure of protection. The government, on the other hand, has held the ground that to increase the tariff on imports from Canada and the United States would result in higher prices to the Japanese consumer.

It is now reported that the government and the Japanese pulp interests have reached an agreement whereby they will recognize a certain maximum quantity of pulp being imported, in return for which the Americans and Canadians will agree to a minimum scale of prices.

Japanese pulp buyers are claiming that American and Canadian pulp is too costly and that when Japan returns to the gold standard the situation will be aggravated.

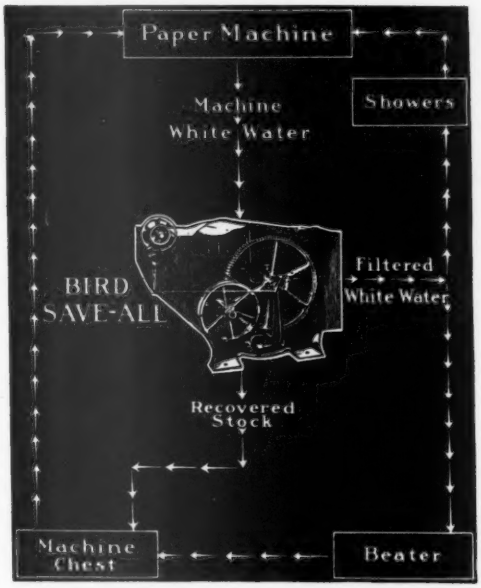
Editor's Note—Private advices from Japan inform that the Oji, Fuji, and Kabafuto companies applied for an increase in pulp duty to protect their mills from foreign supplies. These two companies twice unsuccessfully on previous occasions applied for higher duty when their party, the Mitsui, was in power. The Mitsubishi party, now in power, is more inclined to protect the Mitsubishi Paper Co. which is without a pulp supply of its own. Information that traces directly to Japanese officials indicates that there is but small chance of increasing the pulp duty. Rather, a decrease may be looked for in 1930.

Weber May Head Port Mellon Mill

The remodeling program at the Vancouver Kraft Mills, Ltd., Port Mellon, Howe Sound, in British Coulmbia, which has been under way for several months, is fast nearing completion, and it is expected that the mill will be in operation about the first of the year.

E. A. Weber, now connected with the Oregon Pulp & Paper Co., Salem, Oregon, also operated by the Leadbetter interests, is slated for general superintendent when the Port Mellon mill swings into production, it is reported. A. E. Troetcher, Kraft pulp man who has been connected with mills in Michigan, will also occupy a responsible position at the new mill, it was said.

F. W. Leadbetter, head of the Leadbetter interests, returned to Portland last month from Port Mellon where he conferred with company representatives.



BIRD CLOSED SYSTEM OF WHITE WATER TREATMENT STOPS FIBRE LOSS

A simple, common-sense method that recovers all the stock at the greatest profit per pound

The fibre that leaves your mill with the waste water—a dead loss—costs you as much per pound as the fibre that you sell in the form of paper. Sewer losses are double losses—cost of the stock, plus the profit you ought to make on the stock.

The Bird Closed System of White Water Treatment stops that double loss, with equipment that is simple, inexpensive to install and maintain. It recovers all the fibre in the white water, recovers it so efficiently that you get the highest possible profit per pound.

Re-use of filtered white water gives the Bird Closed System an over-all efficiency of 100%. From the Bird Save-All, recovered stock goes directly to the machine chest for immediate re-use. Filtered white water is recirculated for use in the beaters and showers, so the small but valuable percentage of fibre it still carries is kept in the system and finally turns up in the finished sheet.

The Bird Closed System is a common-sense system. Let us give you actual figures on its performance, show you how little it costs to install, operate and maintain, and estimate the savings it can make in your mill.

BIRD MACHINE COMPANY
SOUTH WALPOLE ▲ MASSACHUSETTS

PACIFIC COAST PAPER IMPORTS—AUGUST, 1929

	Newsprint		Printing Papers		Writing & Drawing		Greaseproof		Wrapping		All Other Paper
	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
To LOS ANGELES—											
From Sweden	88,220	3,390,537	.....	.....	.....	.....	.....	.....	4,741	114,777	.....
From Canada	146,830	4,760,491	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Austria	.....	.....	.....	.....	219	351	.....	.....	.....	.....	100
From France	.....	.....	.....	.....	3,059	5,102	.....	.....	.....	.....	3,658
From Germany	.....	.....	500	375	259	573	.....	.....	.....	.....	11,156
From Italy	.....	.....	.....	.....	4	5	.....	.....	.....	.....	116
From United Kingdom	.....	.....	.....	.....	723	1,540	.....	.....	.....	.....	1,105
From Japan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,732
From Netherlands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	192
From China	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50
To SAN FRANCISCO—											
From Sweden	.....	.....	505	9,650	.....	.....	.....	.....	.....	.....	.....
From Canada	172,525	5,640,065	.....	.....	.....	.....	.....	.....	.....	.....	87
From Austria	.....	.....	.....	.....	233	480	.....	.....	.....	.....	700
From France	.....	.....	.....	.....	475	929	.....	.....	.....	.....	24,935
From Germany	.....	.....	.....	.....	1,206	11,634	.....	.....	.....	.....	9,886
From Italy	.....	.....	.....	.....	46	70	.....	.....	.....	.....	212
From United Kingdom	.....	.....	2,699	962	112	220	.....	.....	.....	.....	1,530
From Japan	.....	.....	.....	.....	38	87	.....	.....	.....	.....	3,781
From China	.....	.....	52	220	.....	.....	.....	.....	.....	.....	573
From Czecho-Slovakia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	108
From British India	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	169
From Belgium	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	40
From Netherlands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	234
To OREGON—											
From Japan	.....	.....	.....	.....	.....	.....	.....	.....	40	250	581
From Austria	.....	.....	.....	.....	100	194	.....	.....	.....	.....	109
From Germany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,108
From France	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
From United Kingdom	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,136
From China	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10
To WASHINGTON—											
From Canada	380,113	11,833,808	.....	.....	.....	.....	.....	.....	.....	.....	1,120
From Japan	.....	.....	.....	.....	16	6	.....	.....	6	10	13,768
From Austria	.....	.....	.....	.....	390	1,182	.....	.....	.....	.....	.....
From France	.....	.....	.....	.....	211	285	.....	.....	.....	.....	326
From Germany	.....	.....	96	186	.....	.....	.....	.....	.....	.....	4,328
From Finland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,403
From United Kingdom	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	927
From China	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
Pacific Coast Total	**787,688**	**25,624,901**	**3,852**	**11,393**	**7,091**	**22,438**	.....	.....	**4,787**	**115,037**	**97,243**

Total Imports of All Paper and Paper Products—August, 1929—$900,661.

PACIFIC COAST PULP IMPORTS—AUGUST, 1929

	Paper* Base Stocks	Pulpwood		Mechanically Ground Pulp		Bleached Sulphite		Unbleached Sulphite		Unbleached Sulphate		Bleached Sulphate	
	Dollars	Dollars	Cords	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons
To LOS ANGELES—													
From Sweden	.....	.....	.....	2,628	102	.....	....	34,024	750	20,911	500	.....	....
From Belgium	7,652	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From France	3,730	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From Canada	834	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From China	1,794	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From Japan	11,714	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
To SAN FRANCISCO—													
From Sweden	.....	.....	.....	.....	....	.....	....	21,611	500	.....	.....	.....	....
From Canada	.....	.....	.....	.....	....	.....	....	6,911	278	1,438	50	.....	....
From Netherlands	95	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From Japan	117,995	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From United Kingdom	294	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From China	75	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
From Australia	784	.....	.....	.....	....	.....	....	.....	.....	.....	.....	.....	....
To WASHINGTON—													
From Canada	5,086	4,261	721	.....	....	4,727	74	6,138	127	.....	.....	.....	....
Pacific Coast Total	**150,053**	**4,261**	**721**	**2,628**	**102**	**4,727**	**74**	**68,684**	**1,635**	**22,394**	**550**	.....	....

Total Pulp Imports—August, 1929—All Grades—$102,644; 3,102 Tons.

*Includes rags, waste paper, bagging and "other waste for paper making."

Fresno Printers Learn Paper Making

A program on paper making was offered by the Fresno division of Blake, Moffitt & Towne to some 45 craftsmen and friends of the Fresno Club of Printing House Craftsmen on October 8, and drew attendance from many out-of-town points in the San Joaquin valley.

Arthur W. Towne, sales promotion manager of the company, came down from San Francisco headquarters to show the feature of the evening, a four-reel film on paper making as taken in the mills of the Oxford Paper Co., Rumford, Maine.

B. M. Hoblick, recently appointed Fresno manager of Blake, Moffitt & Towne, acted as chairman of the program. Reeve T. Watson, in charge of the promotion department, did the real work of running the projecting machine and explaining the manufacturing processes in detail.

The film is unique in many respects since it not only gives successive views through the mill but makes use of special diagrams which explain graphically each step in the process. All who attended enjoyed the instructive and interesting program.

PACIFIC COAST PAPER EXPORTS—AUGUST, 1929

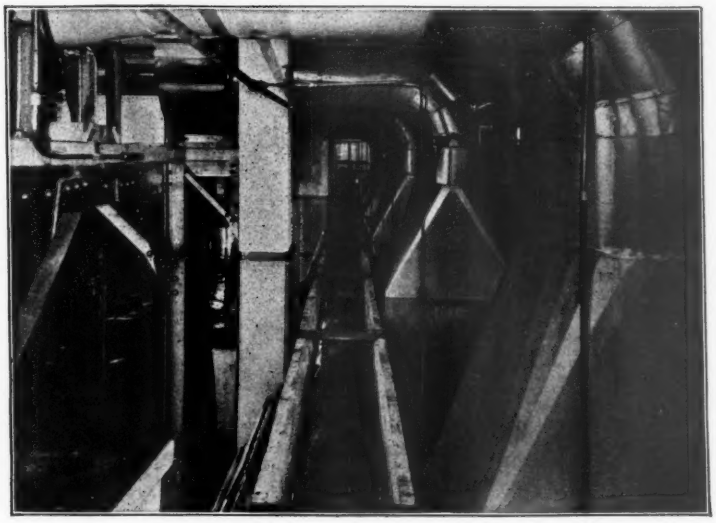
	Newsprint		Printing		Writing		Greaseproof		Wrapping		Tissues	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
From LOS ANGELES—												
To Mexico	------	------	------	------	435	81	------	------	5,730	376	4,713	576
To Canada	------	------	------	------	------	------	------	------	415	43	------	------
From SAN FRANCISCO—												
To Canada	------	------	620	62	------	------	------	------	13	1	512	317
To Central America	36,381	1,405	6,319	370	------	------	2,415	296	23,313	1,274	15,676	1,037
To Mexico	------	------	150	18	------	------	441	74	1,188	105	344	29
To China	------	------	------	------	------	------	------	------	1,968	343	4,825	937
To Japan	------	------	------	------	------	------	------	------	15	3	63	25
To Philippines	------	------	------	------	------	------	------	------	110,042	4,978	6,544	772
To South America	------	------	------	------	------	------	------	------	15,532	819	444	36
To Chile	49,698	1,642	------	------	------	------	------	------	------	------	------	------
To Australia	------	------	------	------	------	------	28	10	------	------	------	------
To Orient	------	------	------	------	------	------	------	------	1,910	80	729	213
To Venezuela	------	------	4,560	223	------	------	------	------	------	------	292	52
From OREGON—												
To Chile	10,918	364	------	------	------	------	------	------	3,776	227	------	------
To Colombia	11,027	340	------	------	------	------	------	------	3,131	191	------	------
To Peru	------	------	2,550	251	14,509	934	------	------	------	------	------	------
To South America	------	------	------	------	90,668	4,686	------	------	------	------	------	------
To China	52,987	2,628	300	48	7,279	392	------	------	------	------	------	------
To Japan	------	------	------	------	------	------	------	------	128	5	------	------
To Australia	15,716	720	------	------	161,313	8,172	------	------	------	------	------	------
To Philippines	378,600	13,052	------	------	------	------	------	------	128,724	6,338	------	------
From WASHINGTON—												
To Canada	943	34	45,412	3,373	2,094	342	1,134	938	3,599	511	77,038	6,260
To China	1,037	178	747,247	44,834	------	------	6,072	974	40	13	75	8
To Philippines	127,713	3,554	168,977	9,069	26,414	2,380	7,231	1,099	------	------	11,493	1,036
To Australia	------	------	72,922	4,113	------	------	------	------	------	------	------	------
Pacific Coast Total	685,020	23,917	1,049,257	62,361	302,712	16,987	17,321	3,391	299,540	15,180	122,748	11,298

	Board		Building		Boxes & Cartons		Paper Bags		Converted Paper Products		Miscellaneous Paper & Prod.
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Dollars
From LOS ANGELES—											
To Mexico	66	15	363	14	------	------	27	1	1,116	760	1,835
To Canada	------	------	------	------	------	------	------	------	------	------	14
To Philippines	106	75	2,309	60	------	------	------	------	831	225	------
To China	------	------	37,241	780	------	------	------	------	------	------	------
To Japan	------	------	32,000	800	------	------	------	------	------	------	------
To Australia	------	------	33,943	913	------	------	------	------	------	------	2,170
To Central America	------	------	------	------	14	12	------	------	------	------	92
From SAN FRANCISCO—											
To Mexico	838	61	------	------	------	------	------	------	31	20	28
To Central America	312,688	7,692	------	------	950	340	31,822	1,881	1,022	400	157
To Canada	3,712	292	1,675	161	------	------	750	132	170	54	3,033
To China	960,574	211,502	13,500	479	1,660	326	------	------	1,413	247	1,138
To Australia	282,009	9,806	52,496	1,608	9,503	804	173	19	1,519	356	18,243
To Peru	------	------	5,000	105	------	------	------	------	------	------	------
To Orient	------	------	10,028	321	250	10	400	35	562	811	84
To Japan	------	------	190,985	6,526	------	------	------	------	12,441	1,083	3,383
To Philippines	------	------	------	------	762	403	119	31	190	94	3,483
To South America	------	------	------	------	------	------	1,939	119	916	514	------
To Venzuela	------	------	------	------	------	------	------	------	28	15	------
To Europe	------	------	------	------	1,002	87	------	------	------	------	334
From OREGON—											
To Chile	------	------	------	------	------	------	24,484	1,487	------	------	------
To Colombia	------	------	------	------	------	------	13,896	1,459	------	------	------
To Peru	------	------	------	------	------	------	47,625	2,982	------	------	------
To South America	------	------	------	------	------	------	11,003	655	------	------	------
To Central America	------	------	------	------	------	------	730	103	------	------	------
To Philippines	------	------	------	------	------	------	138,298	7,946	------	------	------
To Australia	240,475	7,936	------	------	------	------	------	------	------	------	130
To China	898,632	21,481	------	------	------	------	------	------	------	------	------
From WASHINGTON—											
To Canada	6,736	599	------	------	7,666	715	430	30	7,329	428	3,514
To China	100	100	------	------	------	------	374	96	------	------	------
To Japan	355	93	------	------	------	------	------	------	24,823	2,063	415
To Australia	31,852	985	------	------	------	------	------	------	298	73	3,531
To Philippines	------	------	------	------	------	------	------	------	3,829	1,193	------
Pacific Coast Total	2,738,143	260,637	379,540	11,767	21,807	2,697	272,070	16,976	56,518	8,336	41,584

Total All Paper Exports for Month of July, 1929	3,675 tons;	$326,514
Total All Paper Exports for Month of August, 1929	3,353 tons;	475,331
Total All Paper Exports for Eight Months, 1929	23,236 tons;	$2,366,259

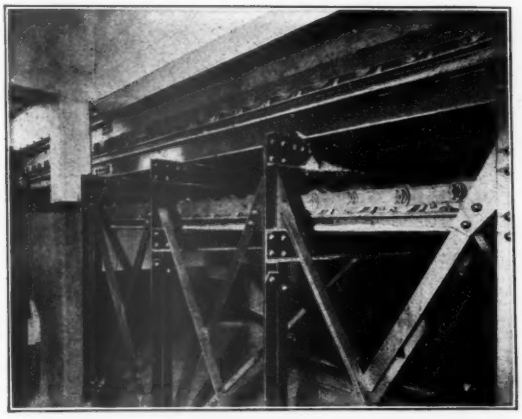
Washington shipped the following wood pulp during August, 1929: To France, 275 tons, $11,060; To Italy, 67 tons, $7,393; To United Kingdom, 1,232 tons, $52,360; To Canada, 1,575 tons, $70,923.

CLASSIFICATIONS—For convenience of presentation, some classifications have been combined, as follows: "printing," includes book (not coated), cover and surface coated paper; "greaseproof" includes waterproof; "tissues" includes crepe, tissue, paper towels, napkins and toilet; "board" includes boxboard, bristol, bristolboard and other paper board and strawboard; "building" includes sheathing, and other building paper; "writing" includes fancy papeteries and other writing; "converted paper products" includes envelopes, cash register rolls, index file and other office forms; "miscellaneous" includes blotters, paper hangings, vulcanized fibre sheets, strips, rods and tubes, manufactures of vulcanized fibre and other paper products. COUNTRIES—Under the classification "Central America" are included all of the Central American countries and Cuba. "South America" includes only the following South American countries: Ecuador, Paraguay, Bolivia, Uraguay, and the Guianas; other South American countries are classified separately. "Orient" includes all the Asiatic countries with the exception of China and Japan, which are separately classified. New Zealand is included under "Australia."



Screw Conveyor for Handling Wet Pulp

HANDLING Pulp and Paper Economically



Apron Conveyor with Structural Steel Frame, Handling Wood Chips from Box Cars to Storage Bins

Wherever material is to be conveyed in the pulp or paper mill there is a WEBSTER-BRINKLEY system that will do the job right.

Screw conveyors for handling wet, pulp, apron conveyors for handling chips or hogged fuel, or gravity discharge elevator conveyors for combining the conveying and dumping of materials, have all been engineered and installed by our organization in Pacific Coast mills.

Our Engineering Department has acquired a fund of valuable knowledge through years of practical experience in solving conveying problems. This experience will gladly be applied to your own particular problems.

WEBSTER-BRINKLEY CO.

SEATTLE, WASHINGTON

Manufacturers and Engineers of Conveying, Screening, Elevating and Transmission Machinery

Canadian Exports of Pulp and Paper September, 1929

Canadian exports of pulp and paper in September were valued at $145,610,067, according to the report issued by the Canadian Pulp and Paper Association. This was a decrease of $1,864,698 from the August total and of $803,753 from the total for September, 1928.

Exports of various grades of pulp and paper for September, 1929, and 1928, were as follows:

	September, 1929		September, 1928	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	23,944	675,370	15,475	403,158
Sulphite Bleached	37,314	1,397,913	21,865	1,652,506
Sulphite Unbleached	16,369	794,207	14,972	750,214
Sulphate	9,476	538,965	12,034	709,068
Screenings	3,263	61,950	2,874	53,548
	90,366	3,468,405	67,220	3,568,494
PAPER—				
Newsprint	1,828,880	108,763,941	1,583,010	101,695,383
Wrapping	919	103,450	1,175	128,587
Book (cwts.)	5,651	51,184	6,918	59,796
Writing (cwts.)	3,850	35,010	3,469	32,085
All other	.....	271,151	.....	250,342
		12,116,124		11,191,228

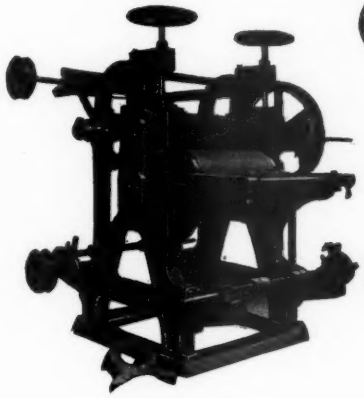
For the first nine months of the current year the total value of pulp and paper exported from Canada amounted to $145,618,067 as compared with a total of $139,549,440 for the corresponding nine months of 1928, an increase for this year of $6,068,627.

	Nine Months 1929		Nine Months 1928	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	152,382	4,200,488	137,236	3,730,754
Sulphite Bleached	211,095	14,581,008	188,200	14,242,220
Sulphite Unbleached	143,221	7,070,560	157,620	7,923,915
Sulphate	101,729	5,998,522	119,578	7,066,900
Screenings	27,268	487,671	22,864	459,544
	635,695	32,338,249	625,498	33,423,333
PAPER—				
Newsprint	1,828,800	108,763,941	1,583,010	101,695,385
Wrapping	11,121	1,208,620	11,888	1,302,136
Book (cwts.)	55,975	478,351	50,421	418,752
Whiting (cwts.)	3,850	35,010	.....	32,085
All other	.....	2,793,896	.....	2,677,751
		113,279,818		106,126,107

Total exports of pulpwood for nine months amounted to 1,081,701 cords valued at $11,009,255 as compared with 1,285,127 cords valued at $12,649,787 in the same period 1928.

Exports of paper and paper products from the United States during the month of August were valued at $3,088,478 as against $2,748,111 during the corresponding month last year, according to the Paper Division, Department of Commerce.

Total exports for the first six months of the year amounted to $25,128,434, an increase of $4,585,263 or 22 per cent over the corresponding period in 1923. The largest increases were registered in shipments of newsprint, book, wrapping and writing papers, boards (including vulcanized fiber), and boxes and cartons.



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CHICAGO

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NEW YORK

519 American Bank Building
PORTLAND, ORE.

U. S. Pulp and Paper Production

August, 1929

According to identical mill reports to the American Paper and Pulp Association, paper production in August registered an increase of 7.6% over July, 1929, and an increase of 4.7% over August, 1928. Paper production for eight months ending August, 1929, showed an increase of 6% over the same period in 1928.

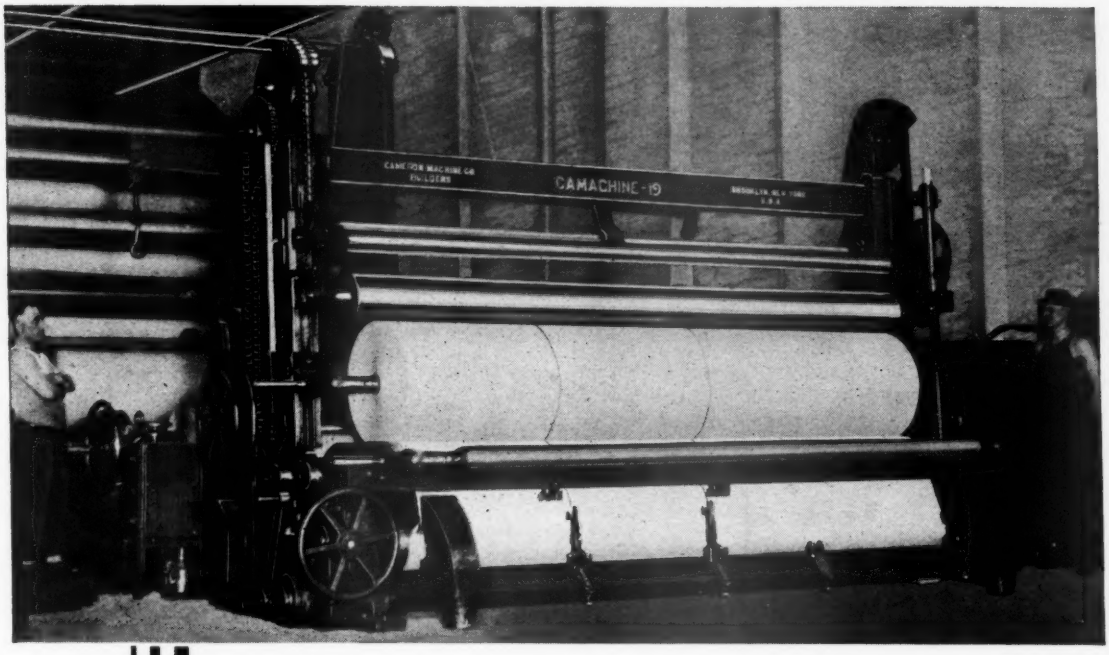
REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF AUGUST, 1929

GRADE	Production Tons	Shipments Tons	Stocks on Hand End of Month—Tons
Newsprint	120,868	118,789	25,656
Book (Uncoated)	90,148	89,287	39,208
Paperboard	233,752	236,024	64,788
Wrapping	52,354	51,655	49,649
Bag	14,814	14,720	5,115
Writing	31,154	31,742	37,472
Tissue	14,564	15,244	9,127
Hanging	5,254	4,957	5,402
Felts and Building	6,954	6,644	2,279
Other Grades	26,700	26,450	15,783
Total—All Grades	596,562	595,512	254,479

All grades of pulp, excepting news grade sulphite, easy bleaching sulphite and kraft pulp, showed decreases in inventory at the end of August as compared with the end of July, 1929. As compared with August, 1928, all grades excepting easy bleaching sulphite and kraft pulp, registered decreases in inventory.

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF AUGUST, 1929

GRADE	Production Tons	Used During Month—Tons	Shipped During month—Tons	Stocks on Hand End of Month—Tons
Groundwood	72,721	92,147	2,384	89,688
Sulphite News Grade	40,053	35,847	3,747	7,551
Sulphite Bleached	26,514	24,707	2,110	2,587
Sulphite Easy Bleaching	3,235	3,040	114	783
Sulphite Mitscherlich	6,823	6,152	739	517
Sulphate Pulp	31,936	25,335	5,613	6,270
Soda Pulp	26,205	17,092	9,251	4,136
Pulp—Other Grades	78	.....	53	44
Total—All Grades	207,565	204,320	24,011	111,576



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North American News Print Production
September, 1929

The News Print Service Bureau's Bulletin No. 141 shows production in Canada during September, 1929, amounted to 227,665 tons and shipments to 226,623 tons. Production in the United States was 108,155 tons and shipments 107,495 tons, making a total United States and Canadian news print production of 335,820 tons and shipments of 334,118 tons. During September, 20,733 tons of news print were made in Newfoundland and 1,298 tons in Mexico, so that the total North American production for the month amounted to 357,851 tons.

The Canadian mills produced 261,318 tons more in the first nine months of 1929 than in the first nine months of 1928, which was an increase of 15 per cent. The United States output was 9,278 tons or 1 per cent less than for the first nine months of 1928. Production in Newfoundland was 17,659 tons, or 10 per cent more in the first nine months of 1929 than in 1928 and in Mexico 1,839 tons more, making a total increase of 271,538 tons or 9 per cent over the same period in 1928.

During September the Canadian mills operated at 91.3 per cent of rated capacity, United States mills at 80.3 per cent and Newfoundland mills at 109.6 per cent. Stock of news print paper at Canadian mills totalled 30,742 tons at the end of September and at United States mills 26,490 tons, making a combined total of 57,232 tons which was equivalent to 3.6 days' average production.

NORTH AMERICAN PRODUCTION

	Canada	U. St.	Nfld.	Mexico	Total
1929—Sept.	227,665	108,155	20,733	1,298	357,851
Nine Mos.	1,993,881	1,038,324	188,385	14,024	3,234,614
1928—Nine Mos.	1,732,563	1,047,602	170,726	12,185	2,963,076
1927—Nine Mos.	1,519,049	1,135,696	150,385	10,778	2,815,908
1926—Nine Mos.	1,380,722	1,259,506	133,590	9,572	2,783,390
1925—Nine Mos.	1,115,232	1,127,436	59,381	9,502	2,311,551
1924—Nine Mos.	1,015,793	1,109,246	48,552	8,622	2,182,213
1923—Nine Mos.	943,692	1,126,192	47,671	9,000	2,126,555

IMPORTS OF PULP WOOD AND WOOD PULP INTO THE UNITED STATES BY COUNTRIES
JULY, 1929

Compiled by the U. S. Department of Commerce Bureau of Foreign and Domestic Commerce
(Figures Subject to Revision.)

PULP WOOD

	Rough				Peeled				Rossed			
	Spruce		Other		Spruce		Other		Spruce		Other	
COUNTRIES	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars
Canada	67,296	698,802	10,777	102,679	81,451	982,645	14,693	133,996	943	11,103	.....	.....

Total Pulp Wood Imports for July, 1929—175,160 Cords; $1,929,225.

WOOD PULP

	Mechanically Ground		Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		All Other Wood Pulp	
COUNTRIES—	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
Austria	.....	.....	.....	.....	50	3,955	.....	.....	.....	.....	24	3,824
Czechoslovakia	.....	.....	99	5,313	201	14,872	.....	.....	.....	.....	.....	.....
Finland	861	22,601	8,503	443,211	.....	.....	1,632	77,674	963	55,439	.....	.....
France	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	230	31,222
Germany	.....	.....	1,690	93,086	5,144	375,682	.....	.....	.....	.....	.....	.....
Lithuania	.....	.....	48	2,522	.....	.....	.....	.....	.....	.....	.....	.....
Netherlands	.....	.....	.....	.....	.....	.....	1,122	52,183	.....	.....	.....	.....
Norway	400	5,288	1,854	92,463	3,043	235,626	958	54,301	50	3,917	.....	.....
Poland and Danzig	.....	.....	.....	.....	.....	.....	160	7,370	.....	.....	.....	.....
Sweden	120	2,611	45,527	2,372,705	3,458	277,053	25,409	1,248,595	.....	.....	.....	.....
United Kingdom	.....	.....	424	20,411	.....	.....	.....	.....	.....	.....	.....	.....
Yugoslavia & Albania	.....	.....	.....	.....	.....	.....	487	20,467	.....	.....	.....	.....
Canada	15,337	397,734	16,052	762,945	15,917	1,235,772	9,592	582,677	840	76,324	438	32,839
Total	16,718	428,234	74,197	3,792,656	27,813	2,142,960	39,360	2,043,267	1,853	135,680	692	67,885

Total Imports of All Grades of Pulp for July, 1929—160,633 tons; $8,610,682.

PACIFIC COAST PULP IMPORTS—JULY, 1929

	Paper* Base Stocks		Pulpwood		Mechanically Ground Pulp		Bleached Sulphite		Unbleached Sulphite		Unbleached Sulphate		Bleached Sulphate	
	Dollars	Dollars	Cords	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
To LOS ANGELES—														
From Sweden	.....	.....	.....	.....	.....	.....	1,350	69,402	.....	.....	456	20,495	.....	.....
From Finland	.....	.....	.....	.....	415	10,111	.....	.....	.....	.....	.....	.....	.....	.....
From France	2,382	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Japan	1,697	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To SAN FRANCISCO—														
From Sweden	.....	.....	.....	.....	.....	.....	.....	.....	1,050	46,250	.....	.....	.....	.....
From Canada	.....	.....	.....	.....	.....	.....	.....	.....	90	1,098	163	4,794	.....	.....
From China	369	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Japan	42,826	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From United Kingdom	2,155	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Australia	168	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To OREGON—														
From Finland	.....	.....	.....	.....	150	3,576	.....	.....	.....	.....	.....	.....	.....	.....
From Norway	.....	.....	.....	.....	.....	.....	54	3,892	.....	.....	.....	.....	.....	.....
To WASHINGTON—														
From Canada	4,448	5,878	735	.....	.....	.....	199	15,983	162	6,741	.....	.....	.....	.....
From Japan	1,996	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pacific Coast Total	56,041	5,878	735	13,687	565	89,277	1,603	54,089	1,302	25,289	619	.....	.....	.....

Total Pulp Imports—July, 1929—All Grades—$188,220; 4,824 Tons.

*Includes Rags, Waste Paper and Bagging and "other waste for paper making."

PACIFIC COAST PAPER IMPORTS—JULY, 1929

	Newsprint		Printing Papers		Writing & Drawing		Greaseproof		Wrapping		All Other Paper
	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
To LOS ANGELES—											
From Sweden	119,718	4,666,695	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Canada	91,370	3,184,287	.....	.....	.....	.....	.....	.....	992	24,163	.....
From Austria	.....	.....	.....	.....	250	465	.....	.....	.....	.....	216
From France	.....	.....	.....	.....	1,850	1,979	.....	.....	.....	.....	95
From Japan	.....	.....	.....	.....	134	220	.....	.....	.....	.....	693
From Germany	.....	.....	925	7,766	.....	.....	.....	.....	.....	.....	2,061
From China	.....	.....	233	748	.....	.....	.....	.....	.....	.....	33
From Italy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
From United Kingdom	.....	.....	.....	.....	217	509	.....	.....	.....	.....	2,963
From Australia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
To SAN FRANCISCO—											
From Sweden	147,728	5,666,871	1,649	40,265	.....	.....	.....	.....	.....	.....	1,639
From Norway	.....	.....	563	13,204	.....	.....	.....	.....	.....	.....	.....
From Canada	121,263	3,954,431	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Finland	1,254	43,575	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Austria	.....	.....	.....	.....	568	1,011	.....	.....	.....	.....	.....
From France	.....	.....	.....	.....	4,819	6,723	.....	.....	.....	.....	3,160
From Germany	.....	.....	.....	.....	606	2,316	.....	.....	.....	.....	13,094
From United Kingdom	.....	.....	.....	.....	801	1,378	.....	.....	.....	.....	1,121
From China	.....	.....	7	37	48	440	.....	.....	54	200	11,926
From Japan	.....	.....	114	350	.....	.....	.....	.....	.....	.....	2,246
From Italy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	66
From Czecho-Slovakia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26
To OREGON—											
From Canada	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
From Newfoundland	41,458	1,709,623	.....	.....	.....	.....	.....	.....	.....	.....	.....
From France	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	267
From Germany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	885
From Japan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	265
From United Kingdom	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	175
To WASHINGTON—											
From Canada	410,542	12,489,993	.....	.....	12	138	.....	.....	.....	.....	1,465
From Newfoundland	144,991	5,869,856	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Finland	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	633
From Austria	.....	.....	.....	.....	148	1,035	.....	.....	.....	.....	277
From France	.....	.....	.....	.....	411	720	.....	.....	.....	.....	614
From Japan	.....	.....	.....	.....	9	130	.....	.....	.....	.....	6,159
From Germany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,820
From Italy	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	59
From United Kingdom	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
From China	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20
Pacific Coast Total	1,078,324	37,585,331	3,491	62,370	9,933	17,065	.....	.....	1,046	24,363	54,040

Total Importsof all paper and paper products—July, 1929—$1,146,834.